



# Assistive or Artistic Technologies? Exploring the Connections between Art, Disability and Wheelchair Use

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## ABSTRACT

Art has deep connections with both disability and HCI research. From disabled bodies becoming avatars of novel forms of expression, to artistic work being created as an act of resistance, art has been a powerful tool to subvert ableist narratives. Artistic practices have also helped to inspire, innovate and push the boundaries of HCI, giving rise to new technologies and interaction possibilities. Our paper presents the exploration of the experiences and practices of 17 artists who used wheelchairs for mobility. Through the thematic analysis of interviews, we conceptualize three themes: (1) Personal journeys through art and disability; (2) Social encounters through art, (3) Skills and technology in art making. From these themes, we reflect on how art can help HCI researchers to capture the complexity of the experiences of disability and assistive technology use and how collaboration with disabled artists could help to rethink the design of disruptive artistic technologies.

## CCS CONCEPTS

• Human Centered Computing; • Accessibility; • Accessibility theory, concepts and paradigms;

## KEYWORDS

Disability, Art, Wheelchairs, Creativity

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## 1 INTRODUCTION

The relationship between art and disability is powerful and complex [56]. Depending the artist, and the socio-historical context, art has helped the voice of people with disabilities to be heard or silenced, disabled bodies to be seen as aesthetically beautiful or ugly, and Crip narratives to be stereotyped or reclaimed [34, 48, 49, 70, 76].

Art is also deeply interconnected with HCI research [41, 43, 73, 81]. The pictorial by Sturdee et al 2021 [81] shows how many HCI

researchers have a “second life” as artists that enables them to create deeper connections with stakeholders, and promotes a more instinctive forms of knowledge. In a similar fashion, Andersen et al 2018 [2] have explored the role of “*disruptive improvisations*”, material and procedural explorations used to question and creatively problematize mainstream and habitual thinking patterns, to foster novel insights. More generally, the majority of speculative and provocative design futuring practices used by researchers in HCI encompasses methods with strong roots in different forms of art [46].

Despite these overlaps, within the context of assistive technology and accessibility, researchers have only begun to investigate how the use of assistive and accessible technologies contributes to the creative expressions of disabled artists. Similarly, it is unclear how disability art could disrupt the design of assistive and accessible technologies leveraging provocative narratives that reshape the perception of disability. A number of accessibility researchers have investigated the barriers that creative professionals and artists with disabilities encounter in their work [1, 4, 21, 69]. Others have leveraged novel technologies to create radically different interaction modalities that make artistic creation processes more accessible to people with different capabilities [17, 21, 39]. These lines of enquiry are essential to increase the accessibility of the art world, enabling disabled artists to overcome existing barriers and allowing for more intuitive and adaptable ways of expressing themselves regardless of one’s capabilities. However, they fall short of highlighting what is unique and disruptive about the existing practices of disabled artists, what role do their assistive technologies play in their artistic expressions, and how these learnings could serve to push the boundaries of current research around assistive and accessible technologies.

In this paper we propose a different approach to re-think accessibility and assistive technology research in HCI through the lens of art. Through a series of semi-structured interviews with 17 artists who use wheelchairs for mobility, we examine their practice across the domains of visual art, music, dance, crafting and performance focusing on the influences that their experiences of disabilities and wheelchair use have on their art. Specifically, we framed our research around three research questions:

- How do embodied and social experiences of disability affect the practices of wheelchair-using artists?
- What role do wheelchairs and other assistive technology play in their practice of art?
- How do the practice of wheelchair-using artists be leveraged to foster new paradigms for accessibility research?

Through reflexive thematic analysis we conceptualize three different themes:

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- **Personal journeys through art and disability:** art, disability, and wheelchair use are embodied experiences that continually interact and affect each other, shaping internal meaning and external manifestations. The result is a deeper personal connection with one's body and a richer artistic practice.
- **Social encounters through art:** social aspects of artistic practices range from enriching professional collaborations and interactions with supportive communities, to navigating access barriers, and being faced with ableist discrimination. Resulting acts of resistance include advocacy, mentoring, and outreach within and beyond the art world.
- **Skills and technology in art making:** different dynamics of movement that emerge in connection to disability shape the process through which artists create and perform. The use of technology, the development of specific competencies, and the integration of wheelchair experiences are weaved together to shape unique creative strategies.

Based on these findings we elaborate on how interacting with disabled artists can help HCI researchers to develop a more nuanced understanding of the many intersectional factors shaping the experience of disability, access, and assistive technology use [18, 35, 74, 84, 86, 88]. Finally, we invite researchers to move beyond dichotomies of impairment-based and ability-based technology and engage with artists towards the creation of artistic technologies that enhance the unique competencies, interaction modalities and creative possibilities that emerge as a result of disability and assistive technology use [13, 14, 42, 67, 79].

In summary, our contributions in this paper include: (1) a first exploration of how disabled artists integrate their personal experiences of disability and wheelchair user in various artistic practices including visual art, dance, music, crafting and performance; (2) a series of reflections on how the work of disabled artists can foster a deeper understanding of embodied and social experiences of disability, and assistive technology use; (3) insights on leveraging work with disabled artists to challenge current assumptions around the role of accessibility and assistive technology, and re-imagine technology that enhances the uniqueness of disabled users.

## 2 RELATED WORK

In the following sections we provide a brief review of research examining the practices of disabled artists, focusing on both first-hand accounts of creative processes and the broader social role of art in questioning disabled narratives. We also provide a summary of HCI literature that specifically looked at the use of assistive and accessible technology in the context of art. Although these short reviews are not exhaustive, they serve to provide a contextual understanding of our study involving wheelchair using artists and help to frame the reflections and implications presented in the paper.

It is important to highlight that throughout the paper we interchangeably use identity-first and person-first language. This is to recognize the different preferences of individuals and disability communities and that, while certain artists strongly identify as disabled and see their work as being part of artistic movements

specific to disability, others do not, preferring to position their work away from Disability Culture [9, 25, 82].

### 2.1 Disability and art practice between social and creative narrative

Solvang 2018, argues that the intersections between art and disability can be examined using different frames: art therapy, outsider art, disability art, and disability aesthetics [78]. These different discourses are not mutually exclusive and often coexist, but each of them carries a number of specific implications.

When disabled people's artistic activities are seen through the lens of therapy, the focus is on understanding the value of the practice to the individual, or specific group of disabled people engaged in the creative process [22, 78]. In a variety of contexts, individuals with disabilities have been shown to benefit from engaging in projects that seek to leverage art to improve one's physical and psychological wellbeing, or to increase self-esteem and promote community empowerment [40]. However, the art therapy framework is connected to a predominantly medicalized view of disability, belittling the artistic value of the work produced by disabled people and favoring ableist discrimination within the mainstream art community [77, 78]. In contrast, the framing of outsider art seeks to highlight how the perceived "dysfunctionality of artist" (primarily in connection to their mental and social status as outsiders) can produce bolder, more intuitive and powerful art expressions that are unique to these outcast groups [47, 77]. However, outsider art has been criticized due to its tendencies to reinforce othering of disabled artist and promote exploitation from curators and art dealers who have a vested interest in maintain the status of artists as outsiders [47, 62].

Disability Art is defined by Solvang 2018 as encompassing the work of disabled artists that is specifically informed by their experience of disability, and is often rooted in the social dynamics of identity, disability culture, and the struggle for disability justice and equality [55, 77]. The close connections of disability art with the disability rights and disability justice movements have led to the creation of powerful works of art that seek to reframe the disability discourse and question ableist narratives [25, 30, 37, 72, 78]. Yet, the specificity of disability art has also had the counter effect of sidelining the work of disabled artists to socio-political activism, resulting in challenges to receive adequate recognition from the mainstream artistic world [77, 82, 87]. Finally, the discourse related to disability aesthetics can help to reclaim the visibility of disability in mainstream art, in particular visual and performance arts, through the depiction of disabled bodies as both beautiful and inspiring [48, 78]. Disability aesthetics does not necessarily carry a social meaning of inclusion, but leverages the uniqueness of disabled bodies as a means to re-imagine artistic expressions in bold and innovative ways [48, 76, 78].

Much of the literature on art and disability is focused on broader societal discourse. However, more recently, researchers have displayed a growing interest towards the experiences of disabled artists and have attempted to unpick the complex relationship between their overlapping identities [5, 22, 38, 82, 85]. For example, Bang and Kim 2015 [5] conducted questionnaires and interviews with 12 Korean disabled artists, including writers, visual artists, musicians,

and performance artists to understand their motivations, creative processes, and the barriers experienced throughout their careers. Results show how their journeys to become professionals were riddled with difficulties ranging from personal struggles with pain or functional impairments, to barriers accessing formal art education, and prejudice and discrimination that negatively influenced their confidence as individuals and professional artists [5]. Considerations around disability stigma drove certain artists to highlight social components of their work, situating their artistic endeavors in the Disability Art movement, whereas it led others to purposefully choose to not disclose their disability status, in order to not be labelled as a disabled artist [5].

On the other hand, the interviews with 47 young artists conducted by Sulewski et al 2012 show a more nuanced picture [82]. Identities as artists were shaped by a variety of factors from the presence of role models in the family, the support and encouragement of teachers, or the inspiration that emerged when interacting with the work of famous artists. Similarly, their disability identity was shaped by personal experiences facing social and environmental challenges or navigating their own impairments, as well as their pride in the broader disability culture [82]. The intersection of these two identities was often dynamic and complex with art being used as a way to claim and reinforce their own identities as disabled, or promote disability pride. Some participants explained how art represented a therapeutic outlet that allowed them to better elaborate personal experiences of emotional and physical suffering [82]. In some cases, young artists felt that these two identities had little overlap, and simply saw themselves as artists who happened to have a disability [82].

In their recent review on the social role of disabled artists and their work, Wolbring & Jamal Al-Deen 2021 attempted to capture an additional dimension of the art disability relationship by specifically looking at the intersections with technology and science [85]. Their findings showed that there is anecdotal evidence of artists leveraging different technologies to create and perform, enhancing their artistic expressions and providing better ways to connect with the audience [85]. However, the authors highlighted how, despite the proliferation of artistic work showcasing synergies and tensions between art, disability and technology use, there is still little academic research examining how the use of technology helps to shape the work of disabled artist and how in turn, disabled artists could help to shape the development of disruptive new technologies [85].

Although studies focusing specifically on the experiences of artist wheelchair users are rare, some poignant examples are provided by both Linton 2021 [50] and García-Santesmases Fernández & Arenas Conejo 2017 [27]. The former highlights how despite the widespread existence of numerous physical barriers in the world of theatre, the greatest obstacles faced by wheeling actors are the misguided negative attitudes of producers, and fellow actors. Regardless of barriers, the author presents several examples of extremely successful performances of wheeling actors who were cast for roles that were not necessarily written to include a wheelchair, without the need for any change in the original script [50]. The latter study describes examples of how the creative performance of a disabled actor using a wheelchair to immobilise a non-disabled actor has

been leveraged to subvert expectations around mobility, able and disable bodies [27].

## 2.2 HCI literature on assistive and accessible technology use in the art

Within the domain of assistive technology and accessibility research in HCI, there are several examples of studies focusing on artistic practice. Many of these studies are specifically focused on the domain of visual arts and mainly investigate the access barriers encountered by artists with disabilities and the role of technology in addressing, or reinforcing them [4, 19, 20, 60]. For example, both Perera et al 2007 and Creed 2018 engaged with physically impaired artists to understand how they leveraged digital and non-digital technologies to produce their work, and what difficulties emerged though these interactions [20, 60]. Findings showed how artists often used different technologies to address limitations connected to their own impairments, but existing interaction modalities often forced them to perform cumbersome repetitive tasks and unnatural movements that could generate fatigue and injuries [20, 60]. Technology limitations also limited their independence which could create unnecessary limitations about the time and modality of work depending on the availability of help [20, 60].

In a similar fashion, the recent study by Payne et al 2020 investigated the practices of visually impaired composers, music producers, and songwriters to understand the accessibility of currently available technologies [59]. Results highlighted how, despite their facilitating role, technologies for composition and production still featured significant access barriers that required participants to use custom made scripts, and develop DIY solutions and workarounds to successfully accomplish their goals. These limitations created artificial ceilings that hampered creativity, complicated collaborations between musicians with and without sights, and restricted one's operational choices [59].

Rather than investigating the barriers faced by disabled artists, a number of researchers have focused on developing technological solutions that could make artistic practices more accessible, often leveraging embodied interaction modalities [3, 4, 17, 19, 32, 39, 45, 66]. Some of these designs were developed to address difficulties linked to specific tasks, such as the HapticEQ by Karp & Pardo 2017 that allowed visually impaired music producers to create and modify equalization curves in an intuitive manner [45]. Others, such as the AirSticks by Ilsar & Kenning 2020, aimed to be more flexible and adaptable, enabling users with different disabilities to engage in a variety of different musical improvisation according to their own taste and preferred interaction modalities [39].

Most of the accessible technologies for art developed by HCI researchers are targeted towards novices with an interest in art, rather than professional artists [19, 39, 58, 66]. For example, Ragone 2020 developed OSMoSiS an interactive system that leverages motion tracking technologies to allow autistic children to create different sounds through body movements [66]. However, technologies such as the voice-controlled system for creative object positioning developed by Aziz et al 2021 have been created and tested with the needs of both novice and expert graphic and interface designers with physical impairments in mind [4].

Examples of creative interactions between disabled individuals and technology have also been explored by HCI scholars focusing on crafting practices. The experience report by Hawthorn & Ashbrook 2017 [33] illustrates how the creative act of developing one's own prosthetic hand turns the body itself into a living prototype and the artist into a self-making cyborg. Even when the differences generated by one's unique creative interactions might be impossible to perceive by others, the visually impaired weavers who took part in the study conducted by Das et al. 2020 [23] explained how individual making practices leave a personal signature that will always be recognizable by the artist.

Although there are exceptions to this, much of the existing research around the use and creation of accessible and assistive technology for artistic expressions is primarily centered around visual art, making, and music. This is interesting especially if we consider the strong embodied connections of many aspects of the experience of disability and assistive technology use, often described as an extension of the body, which might be more prominent in dance and performance art [11, 24, 54, 68, 79]. Moreover, existing studies largely focus on the functional aspects of the interaction between the artist and the technology, often focusing on the negative connotations of access barriers, without looking at how the use of technology by disabled artists might create unique artistic expression and generate social implications around the perception of disability more generally [31, 35, 36, 61].

### 3 METHODS

#### 3.1 Participants

In total, 17 artists who used wheelchairs for mobility were recruited for the study. The choice of focusing our research on artists that used wheelchairs for mobility was driven by a combination of factors. Firstly, we assumed that using a wheelchair for mobility would have affected several aspects of artistic creation, regardless of the particular field of the artist, which we believed could enable individuals to experiment and explore with different creative strategies. Secondly, wheelchair users are an extremely diverse group that encompass individuals who can have extremely different capabilities, experience different limitations, and have different preference. While this is true for most “*sub-groups*” of disabled people, we felt that the additional diversity created by the wide variety of wheelchair types available across different countries could further contribute to the development of unique creative paradigms. Finally, the choice was also motivated by the positionality of the first author, who has previously worked as a physiotherapist and has extensive experience conducting HCI research with wheelchair users. Increased understanding of how wheelchair-using bodies move enabled us to explore in more depth participants' artistic practices.

Artists were recruited through a variety of strategies ranging from social media posts, direct approach through personal websites, introduction from the personal and professional network of the authors, approach through national and international disability art organizations, and word of mouth. Recruitment criteria were self-identification as artist, age above 18, and use of a wheelchair in daily life. No restrictions were introduced concerning the field of art practiced, or the professional status of the artist. Similarly,

no limitation on the type of wheelchair used, modality, or length of use was introduced in the inclusion criteria. Seven participants identified as having multiple disabilities (P1, P2, P5, P6, P11, P14, P15), and nine stated they used multiple assistive technologies, beyond the wheelchair, in their everyday lives (P1, P2, P5, P6, P8, P9, P11, P14, P15). A summary of participants' characteristics is provided in Table 1

Potential participants were approached by the first author and informed about the purpose of the research. If interested in taking part in the study, the research team provided them with the consent form and invited them to participate in an interview. According to the preferences and access needs of participants, the interview could take place synchronously (though phone or video call using MS Teams or Zoom), or asynchronously (in a written format). All participants but one, P14, chose to take part in a synchronous interview. Another participant, P11 who communicates nonverbally, chose to participate in the interview alongside his father, who was also his artistic collaborator.

#### 3.2 Materials & Procedure

Most participants preferred to be interviewed in English, but P11 asked for the interview to be conducted in Italian, and P9 in Japanese. The first author who conducted the interviews is fluent in Italian and the second author is fluent in Japanese, which made it possible to easily conduct the interview in the language requested by the artists. Ahead of the interview participants were provided with a consent form for the study in their preferred language and written or verbal consent was obtained before the start of the interview. The duration of synchronous interviews varied between 40-96 minutes. For the asynchronous interview, P14 was emailed the questions by the first author, and provided the answers in written format. Clarifications were requested as appropriate to ensure that the experience of the artist could be adequately captured. The interview guide was structured across four different areas, with the goal to capture the complexity of the personal and creative experiences of artists: details of the artistic practice, use of a wheelchair in everyday life, integration of the wheelchair and other technologies in the artistic practice, public perceptions of wheelchair use and art. A full copy of the interview guide is provided as supplemental material. Participants were also asked to share any audio/visual/or written material that could help illustrate their personal experiences as disabled artists and the particular characteristics of their artistic practice. This material was often part of the personal portfolio of the artists and, in accordance with participants' wishes, it will not be made available in connection to this publication to protect their privacy.

#### 3.3 Analysis

Synchronous interviews were audio recorded using a portable recorder and transcribed verbatim by the first author. The Japanese and Italian interview were first translated in their original language and then translated into English. The corpus of data included interviews transcripts (or written response to the interview questions in the case of P14), supplemented by digital photographs and videos provided by participants, field notes taken by the first author. The data was analyzed thematically using an inductive approach with

**Table 1: Summary of Participants**

Participant	Art field	Country	Primary wheelchair	Wheelchair experience (y)	Daily wheelchair use	Disability Onset	Artist before wheelchair use (Y/N)
1	Digital Visual Art	UK	Electric and power assisted wheels	42	Part-time	Acquired	No
2	Sculpture and installation	UK	Electric and attendant propelled manual	21	Full-time	Acquired	Yes
3	Baking and Cake Design	Canada	Manual self-propelled	14	Full-time	Acquired	No
4	Dance	US	Manual self-propelled	28	Full-time	Acquired	No
5	Dance and Performance Art	Australia	Manual both self and attendant propelled	5	Part-time	Acquired	Yes
6	Dance and Music	UK	Manual self-propelled	3	Full-time	Acquired	Yes
7	Dance and Music	US	Manual self-propelled	7	Full-time	Acquired	Yes
8	Dance	UK	Manual self-propelled	9	Part-time	Acquired	Yes
9	Dance and Circus Art	Japan	Manual self-propelled	30	Full-time	Congenital	No
10	Music	Canada	Electric	46	Full-time	Acquired	Yes
11	Painting	Italy	Electric	30	Full-time	Congenital	No
12	Music	Canada	Manual self-propelled	33	Full-time	Acquired	Yes
13	Painting	US	Manual self-propelled	35	Full-time	Acquired	No
14	Combined Arts	UK	Manual and electric	23	Part-time	Acquired	Yes
15	Dance	US	Manual self-propelled	34	Full-time	Acquired	No
16	DJ-ing and Music	India	Electric and Manual	27	Full-time	Congenital	No
17	DJ-ing	India	Manual	5	Full-time	Acquired	No

the initial coding carried out by the first author and discussed between both authors to define themes [16]. During the conceptualization of themes, the researchers consulted with the artists on multiple occasions, to ensure that the interpretation of the data (by a non-disabled researcher with no experience as a professional artist and a second non-disabled researcher with experience as an interactive artist) captured the meaning of their own experiences. Once the analysis was completed, the researchers provided a summary of results to the artists to verify the representativeness of the themes. Although participants did not receive additional compensation for their feedback, most artists stated that the possibility to contribute in the analysis had been empowering as it gave them more agency on the outcomes of the study. Suggested changes were discussed between the researchers and artists to develop a joint interpretation of the themes that could reflect the complexity of the experience of different artists.

## 4 RESULTS

As explained in the methods section, the following themes were conceptualized through an iterative collaborative process between the researchers and the artists. The goal was to provide a comprehensive and shared understanding of the complex relationships between creative expressions and experience of disability, paying attention to the specific role of assistive and accessible technologies.

### 4.1 Personal journeys through art and disability

Although the individual journeys that led each participant to the decisions to pursue an artistic practice and claim their identities as wheelchair users and/or people with disabilities were deeply rooted in their own personal experiences, we identified several common elements. Identities as artists and disabled people and/or wheelchair users were generally formed separately. However, these identities were also deeply interconnected. For many, their combined identities as wheelchair users and disabled individuals significantly

affected the artistic practice in ways that were not necessarily conscious or immediately visible. Ultimately, the shared belief was that disability and wheelchair use led an artist to deeper, albeit often challenging, life experiences that created a more complex connection to the body and a richer creative practice.

**4.1.1 Becoming an artist.** Most participants spoke of their decisions to become an artist as something that occurred at a very young age. This decision was sometimes inspired by a member of their social circle, who was an artist. Other participants shared stories about how interacting with works of famous artists captured their imagination to the extent that motivated them to pursue an artistic practice themselves (*“When I was very, very young, I think about five years old I watched a ballet performance in [name of city in the UK]. And I went to see Swan Lake. And apparently, I couldn’t take my eyes off the stage. So I think that’s kind of kind of where it started.”* – P8 Dancer). Although the initial interest towards art was strong for all participants, the decision to become a professional artist often matured over the years. Moreover, the interest towards their chosen field of art was often accompanied by multifaceted passion for other creative endeavors which were pursued for leisure.

Interestingly, both P1 and P5, described their artistic journey as a personal calling rather than a conscious decision. The strength of their imagination, or the ways in which their personal neurocognitive patterns were articulated, made art the only logical way to express themselves. In a way, both participants felt that they had been born artists rather than having become one.

*“I think fundamentally, there’s something about the way that my brain is wired, the way my neurodiversity exists, the way I sensorially exist in the world, that meant that art felt like a really natural form of expression for me, and natural way of connecting and communicating and it’s also where I felt the most myself in the most alive”*  
– P5 Dancer and Performance Artist

Although the majority of participants had an interest towards art from a relatively young age, others did not. Both P9 and P15 had never thought about pursuing a career as a dancer until they started to take classes for leisure. On the other hand, P11 and his father begun painting as a playful family bonding activity that became more serious as they gained more recognition and felt that the nature of their work was becoming more deliberate and focused. Finally, P14 stated that they did not initially recognize themselves as artists, but that some of her previous research and documentary work had been labeled as such by others.

**4.1.2 Becoming Disabled.** The large majority of participants, see Table 1, had acquired their disability throughout their life as a result of an accident, or an illness. Regardless of the individual circumstances, the onset of an acquired disability was described as a traumatic event that completely changed one’s life trajectory. This sudden transition was often associated with shock and grief as one struggled to understand how to resume their life.

*“When I got into this injury, I will not run from it. But for six to eight months, I was into too much of a depressive state. I was only 23 years old and just lying on the bed and trying to understand what exactly had happened.”*

*What is the cause of this, why I’m not able to move my legs? I just started my life.”* – P17 DJ

While some of the participants had a traumatic accident or a sudden illness that led them to become wheelchair users, others started to use a wheelchair as a result of a progressive condition. The transition from walking, with or without other kinds of mobility aids, to using a wheelchair was often resisted, largely due to self-stigma. However, as they begun to use a wheelchair, participants felt that they had found a tool of freedom, something that could enable them to claim back not only their mobility, but also their life aspirations.

*“My chair enables me to live. My chair is... So, I fundamentally I’m a dancer. That’s my core. That’s my essence, it’s who I am. So my chair enables me to live my purpose as a dancer”* – P6 Dancer and musician

Interestingly, while most participants identified themselves both as wheelchair users and disabled, others did not. P14 for example described themselves as a disabled person (using the social model of disability), and only as wheelchair-using artist in the context of dance performance. In contrast, P12 described himself as someone who had a spinal cord injury and used a wheelchair but did not identify as disabled. For some participants claiming their identity as disabled and wheelchair users had been complicated by internalized notions of ableism (*“I had all these notions about disability at first, and it was super scary. I didn’t want to be a part of that world”* – P4 Dancer). However, for others it was made difficult by prejudices within the disabled community and the difficulties that emerged as a result of other intersectional identities.

*“I once went to a really big event, where there was sort of celebrating disability, but I felt really misplaced, because I’d never chained myself to a bus or anything like that. But there were like, a hierarchy of people that had. And if you weren’t one of those people, you hadn’t really tried hard enough. And I thought, well, that’s wrong. Because, you know, I came from this background where opportunities were really difficult”* – P1 Digital Artist

In contrast to other participants, P9, P11 and P16 who acquired their disability at birth spoke of their life journeys through disability as more linear. This included their transition to using a wheelchair, which was seen as a natural process, as much as learning to walk could be for a child without a motor impairment.

**4.1.3 Interconnections between art and disability.** Although personal journeys that led participants to claim their identities as artists and disabled people/wheelchair users were seen as being generally separated, they were also deeply intertwined. After the onset of acquired disabilities, the connections with previously existing artistic practices could be used with an almost therapeutic goal. P4 for example spoke about art being integrated in her occupational therapy to regain strength after a spinal cord injury. On the other hand, P7 leveraged her own artistic practice as a way to process trauma and grief:

*“In the beginning of my injury, I was processing a lot of grief, a lot of trauma. I also was not very mobile. So a lot of the ways that I passed the time and was able to*

*sort of just emotionally processing thing was through art.” – P7 Dancer and Musician*

Some of the participants who had an artistic practice before they acquired their disability recalled having a complete rejection of art for a certain period of time. This creative hiatus was often sustained by the fear that their functional impairments would make it impossible to resume practicing art in the same way they did before (“*I tried getting my drums back going, but I didn’t imagine that you could play with less than three limbs*” – P12 Musician). Resuming their artistic practice was often challenging, with individuals facing barriers that were both personal and projected by others. Ultimately, strong personal motivations, significant resilience, and substantial trial and error enabled artist to find ways to return to their practice.

The experience of acquiring or being born with a disability had a significant impact on one’s life, and artists found a range of creative ways to integrate this experience in the way they danced, made music, or created visual art. For example, P9, who was born with spina bifida, explained:

*“When the doctor took out a piece of vertebra after a surgery, he told me that the fat spread after taking out the vertebra looked like a blooming flower. Inspired by this, I came up with an action like making flowers bloom with my hands behind my back. There are two versions of this work one is to crawl on the ground with only hands, and the other is to perform on the wheelchair with exactly the same choreography.” – P9 Dancer and Circus Artist*

The experience of disability and wheelchair use could both affect the modality in which one’s created art, and the meaning underneath one artistic expression. Themes around disability and assistive technologies would find ways to enter artists’ work in both subtle and deliberate ways. This could be done in provocative ways with the aim to challenge stereotypes and other times simply to promote diverse representation.

*“I’m just more aware of the fact that like inclusivity is important to me in terms of disability. So, you know, if I’m doing something that has numerous people in it, I’ll make sure to include a silhouette of somebody in a chair as well or similar” – P3 Baker and Cake Designer*

Regardless of the specific ways in which artists felt that their disability and their use of wheelchairs affected their artistic practice, all of them described this influence in positive terms. For some, acquiring a disability led them to commit to their career as artists. Others spoke of the ways in which mobility impairments that limited their possibilities drove them to explore in more depth the movement and techniques which were accessible to them. In contrast, others became more instinctive in their practice which led them to create art that could connect with their audience in more meaningful ways.

*“Does my wheelchair influence my painting style? Yes, absolutely. Am i a better painter in the wheelchair, then if i was walking? Absolutely” – P13 Painter*

## 4.2 Social encounters through art

Participants described how their artistic practices were strongly influenced by social aspects. Some participants had active collaborations where they practiced, performed or experimented with other artists. Social connections occurred both within the disabled and the art community and beyond. Depending on the context, these connections could have either positive and empowering connotations, or be riddled with ableist discriminations.

**4.2.1 Connections and collaborations.** While some artists worked primarily alone, many collaborated with others on a regular basis. For example, P10 and P12 both played the drums in multiple bands. As part of his training as a DJ and electronic music composer, P16 had frequent interactions with a mentor that supported his efforts in music production. P4, P6, and P15 were regular members of inclusive dance troupes, whereas P5, P9, and P14 had performed with other artists and dancers as part of specific projects. The deepest example of collaboration was probably the one between P11 and his father. Together they described themselves as a symbiotic pair of artists. P11 is a painter who creates his work by driving his wheelchair, to which brushes dipped in different colors of paint have been attached. His father has worked in the textile industry for a number of years and, creating and mixing colors used on different items of clothing. Besides helping his son switching between different brushes during the painting process, attaching them and removing them to the modified wheelchair as required, P11’s father was also the one who applied the resin locking the colors in place as they worked through the layers of their joint artistic creations. While P11 is the hand, or the wheels, drawing the lines which make up the paintings, he often leverages his father professional expertise in choosing colors:

*“When we work on paintings I ask him to choose which colours he wants to use next, because our taste can be different. But he often just looks at me and points at the colours. He makes me understand that choosing colours is my everyday job, so I should be the one to do it” – Father and artistic collaborator of P11, Painter*

Collaborations established by participants could involve artists with or without disabilities. For example, P6 was member of an inclusive dance troupe, but also did extensive work with other non-disabled dancers. P6 explained how establishing artistic partnerships between dancers who had a significantly different practices and bodies could be challenging and often required significant “*translation effort*” when devising choreographies. However, successful collaborations could lead to transformative discoveries that enriched everyone’s understanding of movement.

Many collaborations were largely professional, but in several cases, artistic collaborations could also become meaningful friendships. In particular, long-standing collaborations such as the ones amongst dancers in a troupe or musicians in a band, could become an integral part of one’s social support structure. Often, personal and professional aspects of these relationships could positively enforce each other, ultimately increasing creative drive.

*“So our dance company can feel like a little bit like a family, so it is one reason I stuck with dancing. It also opened opportunities to engage in other things like*

*acting. The more I feel confident with them the more I am willing to try things which are out of my comfort zone” – P15 Dancer*

**4.2.2 Barriers and prejudice.** Although many of the social interactions described by artists had positive connotations, others did not. All participants reported having faced significant barriers throughout their careers, largely in connection with prejudice and ableism. Challenges and discrimination were particularly common at the beginning of one’s artistic journey, when trying to obtain training and support to develop skills. Being able to get the proverbial “foot in the door” required significant resilience from the artist. Moreover, even after being able to access training, many participants were expected to have to prove themselves to show that they deserved to be given access to opportunities that would be easily granted to someone who did not have a disability.

*“When I started to apply for pastry schools, the first school I contacted, was an accessible building, but said they weren’t willing to accommodate somebody in a wheelchair. So just like the inconvenience, I guess, of having me that they weren’t up for. The second place, I tried to take some classes with said that I’d have to pay for two spots, because I’d take up double the amount of room of an able bodied person” – P3 Baker and Cake Designer*

Ableism could manifest in different ways. One of the most common ones was mistrust of one’s ability. For example, P11’s father recalled being asked in numerous occasions if he “touched-up” his son’s paintings as they looked “too beautiful to be painted with a wheelchair”. Patronizing comments and inspiration porn were also common with artist being complimented for their “courage” rather than their skills. The continuous questioning of one’s ability could significantly hamper confidence both personally and professionally. Stereotypical beliefs were seen as a problematic not only for the individual, but for disabled artists and their outputs more in general, with disability art often being declassified as a social effort rather than art in its own right.

*“If I ever, like say that I’m a dancer and someone doesn’t know me, or has never seen anything I’ve done they’re like, Oh, okay. . . Like, in their brain, they’re like, how did that person dance? Or they think I’m just going to do it for fun. I think that perception is like super limited.” – P4 Dancer*

As they became more established, artists would often face less ableist prejudice, but many participants stated that it would never entirely disappear. Although most artists had developed their own strategies and could sometimes rely on the support of close allies to challenge other’s misguided ableist beliefs, the need to constantly maintain confident and confrontational personalities was described as exhausting, especially when one was already feeling “knackered because of medication and stuff” (P1). Some of the artists disclosed their disability on their personal websites and art portfolios, whereas others chose not to as they did not want to have their work to be necessarily associated to the theme of disability. The audience’s unawareness of the artist disability status could allow for a more open-minded interpretation of the work and, in certain

circumstances, enabled participants to solicit unfiltered comments from their audience:

*“No one suspects the person in the wheelchair to be an artist. So whenever I went an art gallery that features my work into their exhibitions, I just go around, go up to people and just sort of listening to what they say, and ask them what they think. Because they would never imagine is mine, I can actually get honest feedback” – P2 Sculptor and installation artist*

**4.2.3 Advocacy, mentoring, and supporting the community.** As social barriers and ableist prejudices represented some of the most significant frustrations and difficulties encountered by participants in their personal and artistic lives, acts of resistance aimed at debunking stereotypes and promoting inclusions were seen as extremely important. For some artists such as P1, P2, P5, P9, and P14 the advocacy intent could sometimes manifest directly in artistic work inspired by outrage and protest, combined with the drive to specifically shock or surprise their audience:

*“I don’t always get inspired by disability - ideas just come - but sometimes my work is driven by outrage. That’s a powerful energising force when you have chronic pain and fatigue.” – P14 Combined art artist*

Moreover, artists such as P1, P2, P5, P6, P7, P8, P10 and P14 were regularly engaged in various efforts to increase the accessibility of the art world to different marginalised groups within the disability community. For example, P1 and P2 had been engaged in a number of collaborative art projects involving young people with profound learning disabilities. P8 instead, worked with different professional ballet organizations to promote the inclusion of people with disabilities. P5, P6, and P7 had studied extensively to develop ways to make dancing instruction more inclusive towards people with different bodies and capabilities and were engaged in training others to make their dance classes more accessible. Together with another wheelchair musicians and through the support of a number of organizations in Canada, P10 had set up and maintained an accessible music recording studio which has been used by both amateur and professional musicians with disabilities for over 30 years.

*“When we set up the music studio, I don’t know that we were setting out to prove something but I think we wanted to do something about it. Because we were kind of looking at this difficulty with music practice and thinking that there must be lots of people with disabilities who want to get into music and the arts and, you know, and they weren’t just able to do it. I mean it was self-serving, but it was also for a larger community.” – P10 Musician*

Finally, both P4 and P15 engaged in broader community outreach programmes targeted towards children alongside other members of their dance troupes. As part of these programmes and events they would perform, deliver fun inclusive dance classes, and enable children to ask questions about disability, with the goal of challenging stereotypical beliefs and promoting empowering images. These programmes were described as important for disabled and



non-disabled children alike, as they would help to tackle both public and self-stigma.

### 4.3 Skills and technology in art making

Both individual impairments and the use of wheelchair for mobility had a significant impact on participants' movement. Although some functional limitations could create challenges in one's artistic practice, artists experimented with different technologies and their own movement strategies to find new and exciting creative possibilities.

**4.3.1 A continuous innovative process.** Mobility impairments and other embodied aspects of disability and wheelchair use could be linked to significant challenges in one's artistic practice. Dancers pointed out how jumps and leaps could be difficult to perform on a wheelchair, musicians explain how limited movement or postural issues could hinder their ability to play an instrument, and visual artists with reduced trunk and upper limb mobility would struggle to prepare a canvas or set up an installation. However, participants explained that these limitations only prevented one to make art in the "conventional way". As persons with disabilities who had become somehow proficient in navigating challenges through creativity in their everyday life, participants employed the same innovative and experimental approach in their artistic practices.

Innovating often begun by questioning the established ways to create art and starting to look beyond the "how" art is conventionally made using a certain approach, towards investigating the meaning one wishes to transmit and develop a way to achieve that goal. This was particularly relevant in the context of dance where choreographies were often created using a particular vocabulary of movement based on the features and abilities of standing and walking bodies. Dancers and performance artists such as P4, P5, P6, P7, P8, P9, P14, and P15 illustrated how they didn't simply rely on mimicking the movements of a standing dancers while sitting in a wheelchair, but looked at the purpose of each movement and created a completely different vocabulary of movement that would leverage the unique expressive qualities of a wheelchair using body.

*"In the Lecoq pedagogy, there's a lot of animal work and looking at how that creates certain movement within the body. So when looking at this we found for example that the kind of shapes that are made by the arm when using a wheelchair, mirrors the shapes that are made by a bird's wingtip when it's flying. So using a wheelchair is actually quite analogous to the way birds fly in one sense"* – P5 Dancer and performance artist

These experimentations around movement and its meaning were further enriched by exploring combined dynamics of movements involving both multiple wheelchair users who had different capabilities, and other disabled dancers with non-normative bodies [29], to disrupt the existing expressive barriers and codified ways of being creative.

*"In [name of the dance company], we often partnered with each other. So a lot of lifting each other a lot of supporting each other leaning. So when you're doing that with someone with an entirely different body than yours, what are the really creative things you can do? So it opened up a lot of like, creative opportunities that*

*I guess I didn't consider before I was disabled."* – P7 Dancer and Musician

Creative movement experimentation was not solely restricted to dance. For example, P2's body produced involuntary movements through painful spasms that affected both her arms and legs. In the past, she had leveraged these movements to create art by letting the spasms draw the initial lines and progressively adding smoother lines as the spasms slowly subsided.

*"I've literally just held my pencil on the on a piece of paper and just let my spasms draw. And it felt quite upsetting. So it's like. . . 'what is it doing? I can't control this' but then it was like. . . I looked at it and like it so I continued to work on it"* – P2 Sculptor and installation artist

**4.3.2 Combining personal and technological mediations.** Although in certain circumstances participants explained that they were directly able to take advantage of how their disabled bodies moved to create unique artistic expressions, in other cases this was achieved through the development of personalised skills and techniques or through the use of technology.

To make up for his inability to play the kick drum using his foot, in 1990 P12 developed an electric pedal with a solenoid that could be activated using a mouth switch. The solution proved widely inappropriate due to a significant activation delay and the inconvenience of featuring exposed copper wire that caused him to "mildly electrocute" his face during numerous tests. As technology proved to be so unsuccessful, he opted to focus on modifying his technique and adapting the set-up of his drum kit to accommodate his new style, which enabled him to be able to play the drums without having to rely on additional equipment that could interfere with his experience as a musician.

*"The biggest difference is that instead of playing with four limbs, I just play with two hands. So instead of having your left hand, let's say playing the snare drum and your foot playing the kick drum, I played both with my hands. I just had to change my set up"* – P12 Musician

In contrast, P1 found that his biggest creative advantage was fully realised as he "embraced the pixel" and started exploring the boundaries of what he could create by integrating different forms of technologies in his artwork.

*"I was trained to be a painter, but once I left that behind and decided to really look at art and technology, I became able to do anything. I could make a piece of artwork that's as big as a block of flats, or I could mass produce little toys that are kind of crazy little versions of different wheelchairs"* – P1 Digital artist

As a DJ, P16 made extensive use of technology. However, through the experience gained navigating inaccessible set-ups where he had to deal with consoles placed at an excessive height or DJ-ing stations that did not enable him to have a view of the dancing crowd, he developed better memory and listening skills. The first ones would be essential for him to be able to remember the location of various controls in the interface that he might be unable to see. The latter,

described as a key skill for any DJ, would enable him to improvise and more quickly adjust to the reactions of the crowd:

*“As a DJ you have to maintain the crowd. Keep their energy up, you don’t let the crowd go out. By listening I can know what we beat or the BPM of the song going on is, but also paying attention and not letting off the crowd. All these things are really important and now I can keep them in mind when I am doing my set”* – P16 DJ

**4.3.3 Integrating wheelchairs from life to art.** Through their experiences in everyday life, participants developed intimate bonds with their own wheelchairs. The wheelchair was described by many as an extension of their body, but also as a trusted partner that enabled participants to achieve their goals in both art and life. This embodied connection was largely instinctive. As a result, participants did not actually think about their wheelchair during their daily life, until external barriers forced them to do so.

*“The wheelchair is like my legs. I can control it without thinking about it. But if there is a staircase in front of me, the wheelchair suddenly becomes a trouble because I cannot use it for climbing the stairs. I can move freely at normal times, only when a barrier is in front of me I suddenly realize the existence of my wheelchair.”* – P9 Dancer and circus artist

Within the context of art, the connection between the person and the wheelchair became both more playful and more deliberate. Artistic practices allowed individuals to test and expand on the existing boundaries of how they normally used their wheelchair. At the same time, using their wheelchairs within their art practice enabled them to fully leverage its distinctive features making their performance unique and exciting. However, current wheelchair design also limited these possibilities and many artists felt that more should be done to allow them to truly explore the boundaries of their creativity.

*“I love to explore how different wheelchair configurations affect my dancing, it’s almost like having a new body to dance with. But I need to get out of my chair, get tools and... It takes time. I can’t do that in a show in between routines. I want to be able to make those types of modifications very, very simply and quickly”* – P15 Dancer

Although participants felt that the way in which their wheelchair affected their movement and body image was visible, the ways in which their movements and their skills changed the movement of the chair was often overlooked. Similarly, artists explained how the fact that their own bodies and the wheelchair existed both in connection with each other, and as separate entities was rarely understood by most people without lived experience. Dancers such as P4, P6, P8 and P9 tried to make this relationship visible by integrating choreographies that saw them dancing with the wheelchair, away from it, and using the wheelchair as a dance prop on which movement was enacted. Finally, P1, P5, P14 and P17 suggested that creating ways in which the wheelchair itself could become a work of art, or an object with a specific sense of presence on the stage,

could help to challenge people’s idea of what a wheelchair could be.

*“But if you could make a wheelchair that in the middle of a set starts to project light or something synced to the music which you are playing, it’s going to be a different kind of feeling for the person who is playing and for the people who are seeing. Because nobody thinks it is possible”* – P17 DJ

## 5 DISCUSSION

In this section we discuss how the learnings from this study highlight tensions and synergies between disability art and HCI research around accessible and assistive technologies. Throughout these reflections we look at different ways in which collaborating with disabled artists could help HCI researchers to overcome the limitations that lead to oversimplified interpretations of disability and assistive technology use. Moreover, we explore some of the possibilities that could arise if the design of assistive technologies was re-imagined through the lens of art.

### 5.1 Embracing complexity and challenging oversimplification

Over the last decade, thanks to the work of disabled scholars and allies within the community, the field of accessibility and assistive technology research has begun to change [10, 35, 53, 67, 80]. From greater integration of disability studies, to increased recognition to the hidden work of people with disabilities, and acknowledgement of the embodied and biographical relationships between disabled users and their assistive technologies, we have developed a more complex understanding of the role of assistive technologies within the experience of disability [6, 8, 10, 12, 35, 75]. However, accessibility and assistive technology research is still prone to use rigid dichotomies such as disability vs ability, personal vs social dimensions, access vs exclusion, and use vs nonuse of assistive technologies [7, 35, 64, 74, 75].

The experiences of disabled artists have shown unique features that bypass these dichotomies and allow us to explore complex narratives in more powerful ways observing how interactions between multiple identities, embodied aspects, social encounters, and assistive technology explorations are reciprocally connected to each other. Journeys that led participants to become artists could be sparked by external events, embedded into one’s way of experiencing the world, or brought to light by the recognition of others. In a similar fashion, one’s experience of disability could be rooted in the occurrence of a particular traumatic event, be part of one’s identity since birth, or situated in a social context affected by the perceptions of wheelchair using bodies.

When looking at the interconnections between these two experiences, art positively influenced the experience of disability by providing a meaningful way to process physical pain and emotional grief, or express outrage and frustration. However, art was never described as being solely a form of therapy, or a tool for individual reflection, but maintained its focus on technical quality and expressive power [40]. Similarly, disability could deepen one’s artistic practice by providing a more complex and multifaceted lived experience, directly inspiring an artistic performance or a

piece of artwork, or promoting a more inclusive and meaningful artistic practice. Yet, the work of disabled artists often transcended the label of “*Disability art*” in the same way as one’s identity as a disabled person constituted an important part of their self-identity, but it was not the only defining characteristics of an individual [82]. These tensions show how multiple strong identities, don’t just coexist, but continually influence each other enriching experiences and creating dynamics that can converge and diverge at the same time.

Embodied and internalized experiences as artists, disabled individuals and wheelchair users were also shaped by the social encounters of participants which could incorporate both positive and negative connotations. Even when challenging, empowering collaborations could see the artists either receiving or providing support to others, co-creating artistic expressions, or promoting more inclusive ways of working. At the same time, interacting with others within and beyond the artistic and disabled communities meant having to consistently face ableist and discriminatory attitudes.

Both the power of collaboration and allyship, and the negative impact of ableism and prejudice have been explored in the context of disability and assistive technology use [10, 28, 35, 51]. However, we argue that art allows to explore these dynamics in a more profound way. First of all, the work of disabled artists can become a politically situated act of resistance towards predominant ableist narrative incorporating both the individual experience of the artist and broader social considerations [18, 85]. While disabled artists did not claim that they could act as representative for the whole disabled community, they felt that art gave them unique tools to challenge existing narratives, inviting their audiences to reflect on different representations of concepts of disability and assistive technologies.

Secondly, art allowed for the opportunity to move beyond the limitations of an inaccessible environment that often equates disability with disadvantage [65]. Within their practices, many artists did not focus on what they could not do as a result of disability or assistive technology use. Nor they simply looked at what they could do despite their disability or assistive technologies. Instead, most artists emphasized the uniqueness of their creative expressions by looking at what they could do because of their disability and assistive technology use, which was often inaccessible to them before they acquired a disability or begun to use their assistive technologies. Removing these artificially created barriers means creating better opportunities to challenge ability-based hierarchies and highlight the work of disabled individuals both in connection with and beyond the use of assistive and accessible technologies [10, 12, 15].

When considering these reflections is important to notice that the current research has been carried out specifically with artists who used wheelchairs for mobility. Several artists stated that they experienced multiple limitations and that they used a variety of assistive and accessible technologies, within art practice and everyday life, there was a certain degree of similarities between their experiences as a result of our methodological choice. Although we argue that many of the implications presented are generalizable, further exploration with artists who use different types of assistive technologies should be carried out to embrace the complexity of experiences even further.

## 5.2 The value of exploring artistic technologies

Engaging with disabled artists enabled us to investigate how wheelchairs could be used in unique and unconstrained ways as part of artistic expressions and observe how artistic expressions could become bolder and more creative as a result of the integration of wheelchairs. The embodied experience of wheelchair use in everyday life was largely instinctive, with participants naturally integrating the image of the wheelchair in their own bodies without necessarily having to reflect on it [8, 11]. On the other hand, the use of wheelchairs as part of one’s artistic work involved thoughtful exploration and a much deeper understanding of the unique features associated with the combined movement of body and wheelchair. For example, the translational work of wheelchair dancers on challenging the notion of the existence of ideal ways to dance, required significant work on deconstructing the expressive qualities of movement. Moreover, P5’s work on developing a new vocabulary of movement for non-standing dancers was grounded in the reciprocal analysis of how the movement of the dancer affected the movement of the wheelchair and vice versa, promoting an idea of bi-directional partnership rather than top-down control of user over device.

Interestingly the connections between the artist and their wheelchair seemed to go beyond direct interactions and continued to exist even when the artists and the wheelchair were not physically in contact with each other. P1, highlighted how for example it was often possible to identify the wheelchair of a particular person, even if the user was not actually sitting on it. Previous work by Profita et al 2016 and 2018 analyzed how cochlear implant users engage in purposeful efforts to personalize their devices in order to reflect their preferences and match their personality [63, 64]. Furthermore, the work on the biographical prototypes by Bennet et al 2019 showed how meaningful connections between disabled users and the devices that they use are built through sustained interactions that take place over long periods of time [12].

Exploring these dynamics through art can offer some unique opportunities to reimagine how the connections between a disabled user and their assistive technology is reciprocal and features both intentional and non-deliberate aspects. While substantial work in recent years had investigated how the use of assistive technologies affected the way in which people with disabilities perceive themselves and are perceived by others, the implications surrounding how the actions of users affect the perception of assistive and accessible technologies is much less understood [7, 26, 75].

When examining the use of wheelchairs of other assistive and accessible technologies in everyday life, as HCI researchers we often focus on the identification of frictions and access barriers that can limit one’s ability to use their devices to achieve specific goals [52]. However, examining the practices of disabled artist and the ways in which they manage to integrate assistive and accessible technologies into their art can shift our point of view from closing gaps and solving problems to leverage strengths and take advantage of unique features. Painting with a wheelchair created more instinctive lines than the one’s drawn by hand, getting used to DJ-ing without being able to see the crowd made one more responsive, and dancing with a wheelchair created opportunities for more complex choreographies.

The studies by Braggs 2018 and 2021 and the competency framework by Reyes Cruz et al 2020, have highlighted how as a result of their disability and assistive technology use, people with disabilities have developed unique sets of skills that should be leveraged to build on one's unique strengths [13, 14, 67]. In the examples shared by our participants we could identify ways to further expand this by considering what is uniquely possible through the use of a wheelchair or other assistive devices and how these features could be augmented and expanded to facilitate novel creative expressions in art and everyday life.

Wheeling dancers experimenting with how moving the centre of mass and the position of the wheels affects their style, represent a poignant example of self-driven body reconfiguration. This ability is primarily available to disabled-cyborg bodies, but currently held hostage by technology designers [84]. What would happen if rather than enabling wheeling dancers to merely change the position of the axle, we would instead create amorphous mobility technologies that can be completely adapted to one's body and preferences? Explorations rooted in disabled people skills, art and technology can also extend beyond wheelchairs. For example, studies have shown that Deaf and Hard of Hearing (DHH) individuals displayed increased ability to interpret haptic and vibro-tactile stimuli [83]. Although this ability has been leveraged to produce music chairs and vests that allow DHH individuals to feel music [17, 44, 71], how could it be harnessed to enable DHH artists to create revolutionary musical experiences for all? Could a haptic disco become an activity that leads us to redefine what music is, and stimulate new debates about the accessibility of tactile versus auditory communication? Would this lead to the development of "feeling aids" that would replace conventional hearing aids? Another example can be seen when looking at the practice of the blind artist Victor Tan Wee Tar who waves wire to create sculptures, similarly to how blind weavers interviewed by Das et al 2020 created unique patterns on cloth [23]. The wire sculptures by Tan Wee Tar are somehow akin to the wireframe 3D prints by Mueller et al 2014 [57], but could weaving be used as an input to digital fabrication as well? Could wove patterns based in braille cells be read as speech or music opening the door to new creative endeavors? Ultimately, exploring the deliberate and daring practices of disabled artists opens the door to reimagining the way we leverage technology in the context of art and accessibility.

## 6 CONCLUSIONS

Disability shares a powerful connection with the world of art. Similarly, the interactions of art with HCI have given rise to new methods, questioned assumptions and fostered novel insights. However, within the context of accessibility and assistive technology research, it has rarely been explored how the work of disabled artists help to overcome limitations of existing research approaches and spur disruptive thinking about ways to explore the unique creative possibilities that emerge in connection to disability and assistive technology use. In this paper we present the results from collaboratively analyzed interviews that examined the practices of seventeen artists who used wheelchair for mobility to explore the reciprocal influences between art, disability and assistive technology use. The insights shared by participants showed how their

different identities as disabled individuals, artists, and wheelchair users were somehow separate, yet deeply interconnected. Moreover, their experiences as disabled people and artists had been shaped by embodiment as much as by social interactions. Finally, both their creative and everyday lives were affected by a complex balance between their own capabilities, alongside the limitations and advantages of the technologies they used, both assistive and non.

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