The Wind Is the Power: Social Empowerment for Disabled Performers Through Development and Performance of Personalised New Musical Interfaces

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Abstract

This paper presents research carried out with individuals from Dancehearts, a performance group for young people with disabilities. The author seeks to show that interactive media technologies can significantly increase the level of social empowerment experienced by individuals taking part in public performance. The power of art for social change, and the question of power and visibility in public space are discussed in relation to the concept of intersectionality. The author describes the custom designed wireless electronic controllers that the dancers use to "play" music and sound using the movements of their bodies and wheelchairs. These tools magnify the effect of their own actions and movement in space. The dancers are no longer solely choreographed performers, but additionally they affect to the whole performance space through aural interaction, controlling the soundscape used in the performance. For a person with disabilities, the ability to harness media technologies for artistic expression challenges their perceived public role. They become, through their own actions, active subjects.

Keywords

Dance, disability, empowerment, intersectionality, media technologies, music, participation, performance.

Figure 1: "Dance of the Cosmos" performed by Dancehearts and Class Beat, Annantalo, Helsinki, 2017

Introduction

"The wind is the power,
the water runs forward.
The fire moves,
singing.
The birds
gliding fly.
With us stays,
fortunately,
the power -
onward!"

Poem written by Tiina Ripatti (2016) for Dancehearts performance "Dance of the Cosmos".

The words of Tiina Ripatti's poem provide an introduction to this discussion of research that the author has carried out with physically and intellectually disabled dancers and musicians. Tiina is a performer who uses a wheelchair, and a member of Dancehearts, a performance group for young people with cerebral palsy that I collaborated with during 2016-2017. We worked together to develop electronic controllers for music and sound, used in their performance Dance of the Cosmos performed in Helsinki during 2017. This project is part of my wider research into the use of participatory media art for social empowerment in public space. In this article, I seek to show how interactive media technologies can contribute to the feeling of social empowerment experienced by physically and intellectually disabled performers, by magnifying the effect of their own actions and movement in the performance space. I approach this work as a visual and media artist, with my own skills, experience, and history. As far as possible, I use a Participatory

Action Research approach, allowing each member of the group equal influence on the direction and outcome of the project. This allows individuals to be equal members of the team, bringing with them their own skills and life experiences.

The Power of Art

I begin by outlining my own position regarding the role of art in society. I firmly believe that art is political and can bring about change. The work described here could be thought of as promoting wellness or well-being, or regarded as therapeutic activity. Even so, I would argue that these acts are also forms of social and political action, and should be seen within the wider context of social, racial, and gender politics. The idea that creativity and art can be used to promote political change and social progress isn't new. As early as the 1950's, Yoshihara Jiro, founder of the Gutai (literally "embodiment") art movement in Japan stated: *"It is our deep-seated belief that creativity in a free space will truly contribute to the development of the human race"* (Hirai, 2004, pp. 36-37) Marc Garrett and Ruth Catlow, artists and founders of the gallery and social arts organisation Furtherfield wrote their vision statement on their website:

> We believe that through creative and critical engagement with practices in art and technology people are inspired and enabled to become active co-creators of their cultures and societies. We can make our own world – together! (Garret & Catlow, 2013)

I return to this topic later. Let us now consider the physically disabled person's experience of being in the city.

Whose space?

Physically disabled people going about their everyday life, disrupt the rhythm of public space. They do not move at the same speed as the general population. They require lifts, ramps,

Figure 2: A wheelchair user navigating the Hansa shopping centre in Turku, Finland

and wider doorways. They move at their own pace and take their space. Why don't we see physically disabled people in public, in the shopping malls and on the high street? For many who live in homes that are out of the way, getting to the city centre is a struggle requiring a taxi ride. They may need assistance when out and about. Helpers are hard to come by. The physically disabled person is constricted to being in public at times that suit her helper, and in places that are deemed accessible. They are at the mercy of both the architecture of the environment and the whims of others.

According to Petra Kupper's interpretation of Walter Benjamin's writings on the activities of flâneurs in the 1840's, their role in the city space can be compared to that of the physically disabled person in the street today (Jackson, 2011, pp.4-5). There was a short-lived fashion in the 1800s to walk turtles in the shopping arcades, thus requiring the flâneur to adopt the pace of the animal, in marked contrast to that of say, a dog. The turtle forced not only its owner, but also

everyone else around it to re-evaluate their own movement in the city space. Shannon Jackson concludes that the disruption of pace caused by the slowly or awkwardly moving person in public space today not only forces the rest of us to recognise this difference, this "other," but also to understand new possibilities for "being in space." The hectic pace of movement, most commonly witnessed in contemporary cities, is markedly disrupted by an old or disabled person trying to move within narrow corridors in metros or shopping centres. There is no place/space for the majority to by-pass (pass-by) the "obstruction," and thus there is a systemic breakdown in the flow. In contrast, occasionally one may witness the opposite situation when the disabled person or group of people, riding their motorised wheelchairs, are actually more at ease in the smooth floored palaces of contemporary consumption. Their top speed can outpace that of a fast walker, and they have learnt from centuries of abuse that there is no reason to slow down for other travelers! A couple, out for a romantic "walk" in their electric wheelchairs, can quite successfully disrupt the systemic understanding of non-disabled shoppers, as they drive down the aisle hand in hand. This action can be seen as a clear attempt to reclaim the space — and the pace — of the public domain.

We can compare the contemporary situation with that of an historical perspective on how physically disabled people have been perceived and treated in public. Susan Schweik (2009) has researched the so-called Ugly Laws, or "unsightly beggar ordinances" that were in place in various US cities during the 19th and 20th centuries. These local laws sought to forbid physically disabled people from appearing in public– thereby restricting their ability to earn a living by selling goods on the street, busking, or begging. It was thought that physically disabled people should be helped by forced relocation to the workhouse rather than allowing individual citizens the chance to offer charity directly in the street. A similar argument surrounds the plight of homeless people and immigrants sleeping rough on the streets of European cities today.

The categorisation of ability according to visual appearance is deep-rooted across society.

Arthur Franklin Fuller, who was an accomplished pianist afflicted with chronic illness that confined him to a lying position, wrote in his autobiography: "The (other) pianist could not play nearly as well as I, even in dance music. But these folks have well, normal bodies, and that makes all the difference in the world" (Schweik, 2009, p. 272).

In the 21st century, the cult of celebrity makes physical beauty even more of a social currency, yet for some, media technologies help to address the balance and empower otherwise marginalised individuals. The Eye Writer project is a superb example of media technology being used to empower a specific individual Tempt One (Tony Quan), with a disabling disease (Amyotrophic lateral sclerosis or ALS). Tempt One is a pioneer graffiti artist from Los Angeles, California. He was diagnosed with ALS in 2004, but, even though totally paralyzed, he is still able to create art from his bed using the Eye Writer device, which, as the name suggests, tracks his eye movement and allows him to draw and communicate. As Tempt One himself states, "Art is a tool of empowerment and social change, and I consider myself blessed to be able to create and use my work to promote health reform, bring awareness about ALS and help others" (Tempt One, n.d.).

It is clear that the act of empowerment for Tempt One comes through a combination of access to the technology, the ability to once again create graffiti art, and the possibility to have a presence in the public city environment through the large scale urban projections of his graffiti tags. As Rancière (2009) illustrates, emancipation arises through actions and activities that question the roles allocated to or expected of us by society. "That is what the word 'emancipation' means: the blurring of the boundary between those who act and those who look." And continuing further "An emancipated community is a community of narrators and translators"(pp. 19-22). By becoming an "actor," a story-maker, the physically disabled person forces those looking to gaze with different eyes.

To be visible

As Rancière states, the perceived role of a person in society is much richer and more complicated than such conventional labels as class, race, gender, or disability might infer. A conventional view of discrimination in society is based on a monolithic relationship between the oppressed and the oppressor. For example, in first- and second-wave feminism, gender was the defining criteria in determining a person's life experience. Other factors such as ethnicity and skin colour, social background, sexual orientation or disability were marginalised within the discourse (Lazar, 2007, p.142). Kimberlé Crenshaw (1989) first introduced the concept of intersectionality within a feminist context. Intersectionality seeks to show how layers of power and oppression intertwine to affect a person's life experience. Although originally focused on the experiences of Black women in the USA, today an intersectional framework can be used to examine systems of power affecting all sections of society.

A woman of middle-eastern descent may be viewed through multiple lenses. She can be the socially and sexually repressed and subjugated mother in an Islamic family, or fulfil the fantasy role of the out of reach harem slave-girl, or even be a potential terrorist sympathiser. None of these perceived roles could ever be understood by, or attached to, a similar white, working woman. They may have other roles attributed to them (whore, soccer mum, etc.). Thus, the general tag of "woman" alone, is not enough to explain an individual's societal experience (McCall, 2005, p.1780). Similarly, if a particular instance of discrimination is discussed and dealt with, without reference to the complete intersectional view, the person may find that one level of discrimination has just been replaced by another. Arguments about the percentage of female company directors or elected politicians become national achievement targets, yet for the ordinary "woman in the street," this will make no difference to her life. Thus, the agenda of hegemonic white middleclass women takes precedence over issues that affect working class

and immigrant women (de los Reyes, 2006). In reality, discrimination is defined by a multitude of complex interpersonal and structural relationships within society. The intersectional perspective looks at the structural relationships that create forms of consensus and subordination/domination within society, whether these are created through personal subjective actions or institutionalised practices (Sticker, 2008, p. 2).

The visibility of minorities and marginalised people as characters in mainstream entertainment or as sports personalities has a hugely empowering effect on fans with similar backgrounds. Blogger Peri Peteia, a young black woman, writes about her reaction to seeing Nyota Uhuru, the black female character in Star Trek: "OMG A [BLACK GIRL] IS ON TV!"(Peteia, 2013). A woman of colour is allowed to be both a skilled officer in the starship's crew AND to have a consensual sexual relationship outside of the usual clichéd roles allocated to Black women. Recently, both CNN and BBC World News have made big steps to address this situation with strong female presenters from many ethnic backgrounds on major news programmes. Role models are extremely motivating and empowering for young people from any background. Although ethnic and sexual minorities have seen a huge increase in visibility in popular media, there are still very few people with disabilities appearing on primetime television. One exception is British comedienne and actress Liz Carr, who uses a wheelchair due to arthrogryposis multiplex congenital. She has successfully brought disability issues into the limelight with her decidedly not politically-correct stand-up routines. She has lately starred as Clarissa Mullery, a witty and sharp forensic scientist in the BBC's long-running Silent Witness TV series. The recent Twitter tag #HotPersonInAWheelchair, started by wheelchair user Annie Segarra in response to another tweet "Nothing sadder than a hot person in a wheelchair," has provoked a storm of responses by other wheelchair users proud to show themselves as beautiful, sexy and attractive people in their own right. (#HotPersonInAWheelchair, 2018).

T/Act

I will now discuss some practical examples of projects I have developed using new technologies together with physically disabled people. My background is as a media and fine artist. I have previously used new technologies mainly for interactive installations and internet art works. I started working on experimental interfaces for controlling sound and music in 2011 together with Taika Tanssi ("Magic Dance"), a dance group for people with physical disabilities based in the city of Turku in Western Finland. It was very difficult to make much progress when working alone with a group of six to eight people, so I refocused the project to work closely with two participants, Susanna Tuominen and Santeri Aaltonen. Together we experimented with and developed various electronic sensors and devices to control music and sound, that have become known as T/Act – Tools in Action (from Tact, Tactile, Act, Actor, Action). During these projects, I have followed the Participatory Action Research (PAR) approach as far as possible, striving to be a facilitator for the project, while letting the participants set the direction. As Rob Kitchin (2002) states "The philosophy behind PAR is to try and facilitate a moral programme of social action through the facilitation of studies with and by research subjects" (p.7). Nora Sternfeld, with a twist on the classic Marxist question "Who has control over production and reproduction?" asks, in relation to curatorial practice and art education (by definition participatory):

> [the] point here, once again, is to connect the question "Who is speaking?" with that of authorized authorship—"Who has the power to define?"—and to ask how the powerful distinction between the production and reproduction of knowledge can be radically broken down. (Sternfeld, 2013, "Who is Turning?" para. 8).

Sternfeld is particularly concerned about questioning the power relationship between the curator / educator / artist / activist and their supposedly less well-informed/educated collaborator

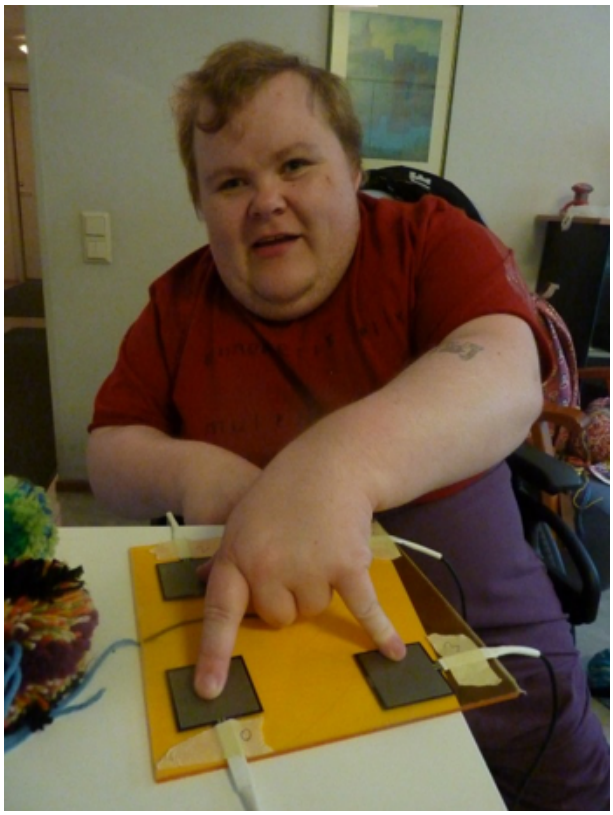

Figure 3: Suski Tuominen testing early T/Act prototype using touch sensors

/ participant / students. Sally Davidson, Artistic Directory of Kaaos Company dance group that uses the Dance Ability method, defines this type of approach in her own words: “We are movement – blood flows! We are all whole bodies, no need to change!” (Davidson, 2018). In the Dance Ability method, everybody participates equally, as they are able, with no hierarchy, no wrong movements or ideas. For myself, when working with Susanna and Santeri, it was very important that they were co-creators, able to affect the project direction, and that they were motivated and invested in reaching successful outcomes.

Tools

I will now introduce the hardware and software that has been used in this project. The approach is to find novel ways to use existing technology, rather than building hardware strictly from the ground up. My eventual aim is to develop a series of devices that could be used by other dancers and performers of varying physical abilities with an appropriately accessible graphical user interface. I intend to package this program as an open source hardware and software solution, so that it can be extended and improved by others. T/Act controllers work by mapping the performer's movement to a particular playback feature of a sound file. The device is manipulated physically, rather than capturing empty-handed gestures via a tracking system (Miranda & Wanderley, 2006, p. 5-8). For me, the sound becomes more concrete and real if it is attached to actual movement of the controller. In this respect I regard these controllers as tools which are designed for a purpose: "Tools foster conviviality to the extent to which they can be easily used, by anybody... for a purpose chosen by the user" (Illich, 2001, p. 22). Ivan Illich regarded that most industrial tools were designed to control the user and deny them the ability for self-expression through the tool or work process. In his discussion of the role of education in industrial society Illich (2001) writes "the majority of people were certified as unfit for higher grades of enlightenment and had to be discarded as unprepared for the good life in a man-made world" (p. 19). For people with disabilities this is the situation they face every day — they are given little choice in where or how they live, what they do, or even if they can work. The T/Act instruments are, I hope, a small step in the right direction towards giving choice and meaning through their physical manipulation.

The primary sensors used to create the controllers are electronic compass, accelerometer, and IMU (Inertial Measurement Unit, which combines accelerometers, gyroscopes and magnetometers into one unit). These are paired with Arduino compatible microcontrollers and XBee

wireless radios, allowing the data from the T/Act devices to be sent wirelessly in real time from the performer to the controlling PC. The main requirements for the devices are light weight, durability and reliability, so that they do not impose any additional strain on the performer and are easy to incorporate into a costume if needed. The selection of the sensor depends on the type of movements made by the performer, as well as the desired sound output and degree of control required.

In earlier T/Act controllers, I used IMUs due to their suitability for getting a wide range of data for all directions of movement. IMUs were originally developed for controlling unmanned aircraft and vehicles (drones), as they easily provide measurements for pitch, roll, and yaw, or, in other words, the orientation of the object in question. If such a device is attached to a dancer's hand we can detect the angle of the hand and changes in speed and direction. A hand or body tends to move in three dimensions, but usually a wheelchair is confined to two. Therefore, for wheelchair users I started to work with a compass module, which would provide the current heading. Think of the wheelchair movement like a giant volume control on a radio. By turning the chair, the volume goes up or down.

Accelerometers are used to measure movement and changes in orientation, as they provide readings for changes in the Earth's gravitational pull on the device. I hoped that all the control movements would be easily understandable, yet at the same time challenging and fun for the dancers. The mappings for the instrument controls had to be simple, clear, and functional. It would be possible to develop mappings that are much more sophisticated if it was appropriate for the performer. We would then be back to the question of the skill and expert knowledge required, which in this project was not at all desirable.

Radio signals send data produced by movement of the controller back to the controlling PC running a Pure Data (PD) patch or program. PD is a free, open source software for data flow programming, originally developed by Miller Puckette. PD allows manipulation of sound and

visuals in real time.

Dance of the Cosmos

How then, does one face the challenge of engaging with people from a diversity of backgrounds, to produce a collaborative dance performance? How to step outside one's own artistic comfort zone and truly co-create? During spring of 2016 I was fortunate to be invited to collaborate with the Dancehearts group from Annantalo, Helsinki, directed by Sanna Kuusisto and Annika Sarvela. Dancehearts is a dance group for young people with cerebral palsy with a range of differing abilities, but all with a love of dance and movement. Some of the young people are extremely independent and can move about the city without assistance. Others need constant help, attention, and care.

The chance to work with Dancehearts was a new and exciting opportunity for me, coming as I do from a visual and media arts background with little previous dance and performance experience. In particular, the rigor of having set, weekly sessions, and rehearsals with a large group of people was a new way of working for me, with its own benefits and challenges.

I quickly realized that the whole research and development situation is completely different with a dance studio full of between ten to twenty people, compared to the intimate one-on-one situation I had been working with previously. The work plan had to take account of very practical issues such as how to get attention from the group, and how to communicate what was going on in a clear and meaningful way. Working with other professionals from dance, movement and music also meant that I had to work within their teaching frameworks and group dynamics.

Dancehearts develop their performances through each individual's own exploration of a theme or idea emerging from improvisation sessions. These individual fragments are linked together through a common theme. The fragments can be extremely different in form, expres-

Figure 4: Dancehearts members trying out the T/Act "thingies"

sion, tempo and mood, depending on the individual dancer's abilities and motivations. Some elements are developed as solos, others involve the whole group on stage together.

At the beginning of the autumn in 2016, we had two full-day group workshops, with the aim to develop the overall direction of the new work, Dance of the Cosmos. The premiere would be in spring 2017 during the Annantalo festival. Annantalo is a children's art school in the centre of Helsinki that organises a wide range of arts courses, events, performances and exhibitions for all types of children. Along with Dancehearts members, we were joined by the Class Beat band from Resonaari special music school. Class Beat was directed by Pete Sämpi and Riikka-Helena Tuominen. This was another interesting challenge –how to develop the T/Act controllers so that they could perform alongside real live musical instruments. I had to develop the controllers from an interesting concept prototype into something that could stand use in live performances. Issues such as durability, scalability, and ease of use became extremely relevant.

During the daylong workshops in September and October 2016, as well as participating with the overall dance sessions, I introduced the T/Act "gadgets" (Finnish — härpäke or "Thingy" as they came to be known) to the whole group.

Participants experimented with the controllers using their own movements and physical capabilities. Immediately it was apparent that while for some people the connection between their movement and the sound produced was understandable, for others it was random chaos. In fact, this is the fundamental design issue facing the development of this (or any?) type of new "instrument" or controller – what design elements transform the device into a musical instrument, rather than leaving it as a fun and playful toy or gadget? In *Interactive Performance Systems: Experimenting with Human Musical Interaction*, Koray Tahiroglu (2008) has discussed how microcontroller-based instruments give the possibility for non-expert performers to experience musical activity. Easy use and control delivers maximum pleasure from the interaction with little effort required to learn the interface. Particularly for people with differing physical abilities, how can we facilitate subtle interface control that is meaningful to those individuals, as something they can understand and control? We are used to the concept that a virtuoso musician has had to practice for many, many years to achieve a high level of competence. Why should a "new" controller interface be any different? Are these musical instruments, toys, or gadgets? Is it meaningful to create sound controllers for people who have no intention to practice more than a few times before a public performance? Many of these questions are answered by thinking about the original goal of the project: to empower the performer by giving access to understandable **tools**. These tools affect the whole performance space, something that is conspicuous to the performer and colleagues, as well as the audience. Using custom designed wireless electronic controllers, the dancers "play" music and sound using the movements of their bodies and wheelchairs. They are no longer purely a choreographed performer, but in addition, they cause affect to the whole performance space through aural interaction, controlling the soundscape

Figure 5: Tiina trying gestures with her right hand

used in the performance.

As plans for the dance performance started to develop, it became apparent that four of the participants had a real interest to work with me and the T/Act "thingies." Three people eventually realized solos utilizing these physical sound tools. Interestingly, each of these dancers has very different skills, abilities, and interests, time and motivation, and therefore we ended up with very different solutions for each person.

The first of my collaborators was Tiina, an electric wheelchair user. She has some movement only in her hands and arms. She has a strong personality and is very independent. She uses public transport by herself to move about the city. Tiina was very enthusiastic about the whole performance, and had written the poem "The Wind is the Power" (quoted at the beginning of this article) that became a key element in the final production. We wished to use the poem

in Tiina's solo, but because her voice is quiet, I recorded my daughter reciting the poem in both Finnish and English versions, and this recording was used for the performance. Using the compass controller, Tiina is able to "play" her poem (with additional background atmospherics) as she enters the stage at the start of the performance. Tiina and I held additional rehearsal sessions, allowing us to experiment with different sounds and mappings together with her dance movements. Her enthusiasm for the project allowed us to create instruments that used her particular abilities together with the content she had produced (the poem). In addition, Tiina's performance includes painting an imaginary canvas between her and the audience. Using an IMU controller, sound can be heard when she moves the paintbrush. Her actions are literally amplified through the addition of sound. Tiina's movements have lent affect to the whole space — stage and audience. The poem is used again at the end of the performance when Tiina is the final person moving on stage, her positive words staying with us as the lights go down. The fact that Tiina's poem, written earlier in the spring, could become such a central part of the final dance performance, was an extremely satisfying and empowering moment for her.

The second instrument set was developed for Selja, a manual wheelchair user. For moving and dancing, she needed use of both hands, so a hand-held instrument was out of the question. The solution was to mount the controller on her left wrist like a watch. Selja's personal musical theme was the Forest, with key words like "leaves" and "wind." We decided that bird song would be appropriate for her, so as she moves her arm the audience hears birds singing in the forest. For Selja we used a similar mapping arrangement as Tiina's, so that sufficient movement of her arm triggers playback of the bird song. As the movement threshold is set quite high, she must make definite gestures with her hand to "hear" the birds. In Selja's case, the bird sounds complement her dynamic dance movements. The controller gives her power and authority to trigger the bird song herself, rather than it just appearing as a remotely triggered sound effect.

The final set of "instruments" was created for Siiri, who had joined us with the Class Beat

Figure 6: Siiri performing with other Class Beat members

band. Siiri is a professionally qualified dancer with an intellectual disability. Her physical ability, and the richness of expression in her movements, are highly developed. She plays a drum machine in the band, and after seeing her movements I realized that we could use similar drum machine sounds triggered by her gestures to create a natural link between her entrance as a dancer and her role in the band. Siiri has two controllers, one on each arm. One triggers a "clap" sound, the other a "drum beat." As she enters the stage with somewhat robotic movements, the sounds are triggered and stopped in time with her body. Siiri has a natural ability to use the controllers, and I hope to continue working with her in the future, adding more sound controllers as well as functionality to control a simultaneous visual projection generated in real-time from her body movements. Siiri clearly has the bodily awareness, ability and motivation to learn how to use this type of system as a Gesamtkunstwerk controller, where she alone will create dance movement, sound, light and image.

Conclusions and Discussion

Dance of the Cosmos and the individual cases presented here, clearly show that social empowerment is possible to achieve by using art and artistic methods in a positive, collaborative encounter across disciplines. With this outcome, I am clearly at odds with art critic Claire Bishop (2004). In essay "Antagonism and Relational aesthetics" Bishop argues against the "feel good" convivial relational aesthetics art practices of artists Rirkrit Tiravanija and Liam Gillick, comparing them unfavorably with what she sees as the "tougher," and therefore "better" art of Santiago Sierra and Thomas Hirschhorn. For Bishop, "socially engaged art" must fail precisely because it lacks antagonism with the audience and society. Sierra sums up both his own position and that of Bishop when he states:

> I can't change anything. There is no possibility that we can change anything with our artistic work. We do our work because we are making art, and because we believe art should be something, something that follows reality. But I don't believe in the possibility of change. (Sierra, 2002, p. 15).

Bishop argues that the avant-garde artist must take a confrontational stance to society, the audience, and any potential collaborators. For her, even if social change is desirable (and she admits that many participatory artists are against neo-liberal capitalism), it is not the role of art(ists) to achieve this change. Referring to the "Ladder of Citizen Participation" (Arnstein, 1969) Bishop (2012) states that, *"The most challenging works of art do not follow this schema, because models of democracy in art do not have an intrinsic relationship to models of democracy in society."*(p. 279). Continuing, she writes: "At a certain point, art has to hand over to other institutions if social change is to be achieved"(p. 283).

In other words, for Bishop it is impossible for art to function as a tool for social justice, empowerment and change. Shannon Jackson (2011) takes issue with Bishop's approach. Rather

than approaching participatory art practices through the narrow lens of the visual art world, Jackson views these works from the perspective of theatre and performance as well as community and social arts. Bishop finds it difficult to accept any work that compromises the authenticity of the "author" through a genuinely collaborative creation process. In response, Jackson (2011) draws up what she calls a "critical barometer" to illustrate Bishop's over dominating criteria for art that should be "critical, illegible, useless, and autonomous":

1. Social celebration versus social antagonism
2. Legibility versus illegibility
3. Radical functionality versus radical unfunctionality
4. Artistic heteronomy versus artistic autonomy (p. 48)

Bishop over-emphasises the later terms in her critique of participatory art by failing to discuss practices that combine these contradictions. By focusing her critique on artists operating within the confines of the art world with its cozy, familiar audiences and existing status in society, Bishop ignores strategies that are inclusive, empowering, and challenging.

I would argue that the *"härpäke"* are tools for conviviality in the Illichian sense, designed for a specific purpose for unique people. Shannon Jackson's desire for true collaboration and Nora Sternfeld's question "Who is speaking?" are clearly answered by Tiina's poem "Wind is the power," Harnessing the ability and motivation of the individual to control the environmental soundscape greatly enhances the significance and meaning of that person's actions. Just as in watching any moving image, sound brings the performance to life. Knowing that the actual movements of the dancer control the sound, brings more significance to the act, and so empowers the performer through the recognition by the audience of that action – response loop.

Figure 7: Tiina practising with "paint brush" controller

For the physically disabled person, the ability to harness media technologies for artistic expression challenges their commonly perceived public roles. They become, through their own actions, active subjects causing affect to the whole audience experience. It is this physical act of doing and being in public, which leads to an empowering cognitive experience with long lasting consequences for the individual participant.

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