THE UNIVERSITY OF CHICAGO

SHAKING THE HABITUAL: EXPERIMENTATION, TECHNIQUE AND SELF-FORMATION IN DANCE RESEARCH

A DISSERTATION SUBMITTED TO

THE FACULTY OF THE DIVISION OF THE SOCIAL SCIENCES

IN CANDIDACY FOR THE DEGREE OF

DOCTOR OF PHILOSOPHY

DEPARTMENT OF ANTHROPOLOGY

BY

ANNE-SOPHIE REICHERT

CHICAGO, ILLINOIS

AUGUST 2023

“Now put your brain into your spine.”
Shirah Perry, my Pilates instructor

Table of Content

List of Figures

Acknowledgments

If one thing made this dissertation easy, it was that my field site was the dance community. Throughout the past years, this project allowed me to jump, crawl, rotate, climb, run, hop, roll, tip-toe, lay, lounge, sleep, turn, and walk in manifold studios across the US and Europe, in forests, at lakes, in kitchens, theaters, and at parties. Black dance scholar Jasmine Johnson, many years ago at a conference at Northwestern University, highlighted the force of delight that dance embodies and propels. It is this force that has kept me not only dancing but writing.

Dancing is, in many ways about the dancers, about forming and being in community. I am immensely grateful for all the dancers that opened their classes and studios to me and welcomed the idea of my project. Who listened patiently to, and challenged my ideas, guided, and taught me in dance research, and took time out of their busy schedules to sit down with me and chat. I'd love to thank all members of the ISSC international, especially Nita Little and our Berlin ISSC CoLab, Kira Kirsch, Antoine Ragot and the Movement Artisans Axis Syllabus community, always in movement so it is hard to name individuals here, Kerstin Kussmaul, Diana Thielen, Angela Schubot, Jared Gradinger, and Marion Steinfellner.

When I first boarded a plane from New York to Chicago in early 2013 for a campus visit, I had no idea that 10 years later, I'd still be enrolled at the University of Chicago. All I knew was that I was hungry to learn more in quantity and quality than I had learned in Germany. The University of Chicago wholeheartedly delivered. Over the last 10 years I had the privilege to enjoy the kind of education and intellectual growth that I had wished and longed for a long time. The intellectual rigor and community of the University of Chicago is repeatedly praised from near and far, and while some may think that is a myth told to distract from the awfully long and

hard Chicago Winters, I can confidently say that I have never felt more intellectually challenged and at the same time at home than while thinking with and learning from people at UChicago. Moreover, the University of Chicago had the means to fund my education and research generously with several grants and fellowships over the past ten years. I am deeply thankful for this opportunity and gift.

In more detail, I want to express my deepest appreciation to my PhD advisors Hussein Agrama, William Mazzarella and Michael Rossi. Their mentorship, feedback, kindness, and generosity have shaped me into the researcher I am today, and I could not be more grateful. Thank you for taking time to help me and my work grow.

On my mind is also my MA advisor, Judith Farquhar, whose teaching, and work convinced me that Anthropology would after all be the most fitting home discipline for me. I had tried, among others, political science, law, and philosophy before. Overall, I still remember my MA year in the Anthropology department, before I embarked on the PhD, as one of the most formative periods of my education. Professors Judith Farquhar, William Mazzarella, Michael Rossi and Francois Richard opened many conceptual and literal doors for me and showed me the route to theorizing sensible and affective politics.

I'd furthermore love to thank my cohort colleagues, of whom many have become friends over the years, as well as colleagues beyond my immediate cohort in the Anthropology department, in CCHS, CHD, English, TAPS, Linguistics and Psychology. Their interest, support and encouragement have made this achievement possible, and I owe them a debt of gratitude.

While I have found a home in Anthropology, my interests and work still frequently venture beyond disciplinary boundaries, something that I can't help but do although it comes with a lot of trouble navigating disciplinary conventions, languages, and boundaries. In this

respect, I am thankful to all the little pockets around the University that opened their arms and doors for me. I think here of the Gray Center for Arts and Inquiry where I was able to perform and show artistic work, the Center for the Study of Sign, Gesture and Language, who cured me from my distrust in language (at least partially!) and took me too India to talk about bodymind techniques, the Fishbein Center and its workshop, the Medicine and Its Objects workshop and Tina Post's Movement Theory Reading Group, where I met fellow dance scholars.

Not to forget here is my time at the University of California Davis and Berkeley, where embodiment is in the air, and I was able to learn from and with Joseph Dumit, Alva Noë, Marianne Constable and Dor Abrahamson, as well as from and with my colleagues' turned friends in Marianne's Feldenkrais class and our little embodiment reading group.

I love my friends and can't live without them. They sustain me with laughs and cries, forest walks and fries at night, hugs, drugs, and dances. Esther, Arno, Alina, Annina, Caro, Niko, Jimmy, Fadi, Thérèse, Arsch, Kerstin, Anna, Laila, Thom, David, Tanima, Marion, Sophie, Wendy, Sophia, Ari, Cecilia, Patsy—you are what I need.

Finally, the family. My parents still don't understand what this dissertation is about or why I can't work a normal job, but they have nevertheless supported me tirelessly in finding and pursuing my own path. Thank you for that, so much. Honorable mention to my brother Jonas who has put up with my know-it-all attitude for his whole life. I'd also love to thank my grandparents Johanna and Arno whose home will always be my favorite family gathering place. I have escaped to their house many a times when life seemed tough, and I knew my grandma's cooking and consoling would soothe me.

Through the course of this dissertation, a family of my own has emerged. To his chagrin, I blame my husband and partner Onindo frequently and for many a thing, for example, that he

isn't better at helping me with my last-minute Word formatting issues of this dissertation. Truth is, he moved continents so that we could be together, and I could pursue my graduate education although we had just met each other. I know he would do it again. He has assured me that he is still interested in reading the dissertation. I am still interested in him. Lastly, I thank my daughter Laila who taught me patience, humility, and devotion. This dissertation gets handed in without one all-nighter because I need to sleep before I am woken by her at 6.30 am every morning with a request to party. In other words, she keeps me sane. Laila has announced with great excitement that now that the "doctor job" is handed in, she can retire from her daily duty of daycare and "we can play all day." On the other hand, she loves my office. I love her.

Prologue

It is 5 in the morning on Jan 22, 2020. I have just nursed my three months old baby back to sleep. I am getting out of the uncomfortable hospital bed, leaving her in my bed. She is not alone; next to my bed is another hospital bed, my partner is sleeping in that bed. My baby had trouble falling asleep last night, I think she could sense my agitation and fear. We were admitted as a family to the hospital yesterday afternoon, luckily the two were able to come—I would not have known how to do it any other way. I am taking a shower in the bathroom, washing my body with a special antiseptic shower gel and shampoo, afterward disinfecting my nose with an antiseptic gel from the inside and putting on the blue hospital gown. I am getting ready for surgery and the feelings of anticipation of what is to come are very different from getting ready for a night out. It feels strange to prepare oneself for a violent, bloody physical intrusion to which one has consented with several official signatures the day prior. I will be anaesthetized and then laid on my belly on a table. The back end, where my feet are laying will be moved up so that my feet are higher than my head. My body will hang at approximately a 45-degree angle to the table. This can cause breathing issues later, as the breathing hose in my throat can be put under pressure. I imagine my position as a linear regression in a coordinate system. The institution of the hospital and the insurance and the degrees and positions of the people holdings the knifes and assorted tools legally sanction the bodily injury that I am about to expose myself too. Thus, my feelings of fear of this intrusion seem out of place. I have rarely felt this alone, and the twilight of the early morning does not make it better. At 5.30, I am picked up by a nurse. The nurse is transporting me in my hospital bed since I won't be able to walk when I return. It feels weird to lay wide awake and scared in a hospital bed, being rolled through the empty corridors, knowing that I would be perfectly able to walk to the operating room myself. The nurse drops me

off in a waiting room. Here, all meat bodies lay in their beds waiting for their surgeries like lambs to the slaughter, some more sedated than others. The beds are labeled with numbers indicating an order for who is going in when and where. Next to me is a guy who doesn't speak German and only rudimentary English. He is getting brain surgery. I have to verify the location of my surgery, so does he. I am in that room for what feels like forever. At some point, I ask whether I can get up and go to the bathroom. I am allowed. I put on little paper shoes to not soil my feet with bacteria and viruses. I walk to the bathroom. Next to the bathroom is the exit door. I could just walk out that door and all would be over. But I don't. It's like how you could pull off the street by a sudden move of the steering wheel, but you do not. With going through the door, I could end this all immediately. Except my pain. That would certainly not be over and that is why I am here, having consented to this injury. Why can't the waiting room be a dance hall or some other kind of cheerful, encouraging or at least calming environment? Why must it be a numbered, numbed hall of anxiety? Lots to change about the hospital system in my humble opinion. I am getting back into my bed. I have been waiting for the longest 90 minutes of my life when I am being addressed with my name and then rolled into the operating room. Here are real people, talking to me and taking me serious as a person. I express my fear of dying and that I have a tiny baby. They console and soothe me, telling me that this is a routine procedure. The narcotics doctor arrives and 5 minutes later the opioid cocktail carves its way through my veins. It feels like a cold burning spreading through my body. I think of the Sackler family and Nan Goldin's opioid addiction. Then I am gone.

When I began the early pre-field dissertation research and reading, I was puzzled as to why so much of the philosophical and even anthropological literature that tackled the body was about pain in one or another way. The sick, the abnormal, the suffering, the medicated body—

somehow the body seemed to only become interesting to scholastic inquiry when it was underperforming. Indeed, there is the argument, put forward by philosophers, sociologists, and anthropologists alike that we only become aware of our bodies when they do not move and function in the ways we expect them to. I found few works on the productive generative capacities of our human bodies, and I wanted to change that. Then, just as I prepared for my PhD exams, I began to experience a shooting pain down my leg. It wasn't there all the time but had a certain regularity to it, I did experience it a couple of times a day—it was aggravated by Chicago's sharp and ice-cold winds that blew through the city in March. I wasn't that worried. I had experienced a similar pain the spring prior and the spring before that, too. The pain had gone away by itself after a few weeks and after an excellent treatment by a Trager therapist in Chicago who told me to move my hips as if I were a T-Rex and I was wagging my tail. That did work. However, this year, 2018, the pain was here to stay. In August I went to see an unfriendly macho orthopedic doctor who used all the wrong language, rather scaring than empowering me (how we talk about injury determines how much pain we feel, recent research suggests) and he ordered an MRI. The images showed a heavy disc herniation at L5/S1. This means that one of the bubble gum texture-like discs that sit between the vertebrae had broken through its fibrous ring and was pressing on my nerves, especially on my left leg's sciatic nerve. The sciatic nerve runs through the vertebral canal all along the spine and branches in the leg like a tree with a thousand feathery thin roots. As the nerve was compressed by the bulging disc, the pain signal was transported up and down the spine, through the nerve into my leg.

I am not really a sarcastic person, but the irony is hard to miss: Here I was, relocating back to Germany for my field research after five years in the US and as I am about to begin a project on generative bodies, my own body fails me. The following 18 months, in which I indeed

began fieldwork were also a phase of battling with and nursing my pain in all kinds of different forms. I went to physiotherapy weekly for almost two years, saw different doctors, healers, ostheopaths, and a witch (who did not heal me but accurately predicted my pregnancy in a full-on embodied trance experience). There were ups and downs, it did get a little better, but the pain did not go away, and my range of movement was severely restricted. I could not bend forward without bending my left leg, I could not sit with legs stretched out in front of me, I could not run or jump without a sharp pain shooting through my leg as my left foot touched the ground. Despair was growing and I felt helpless and vulnerable, an experience often recounted by chronic pain patients (Coninx and Stilwell 2021). Pain is immensely complex. It hinders you to move properly, the improper, careful movement then stiffens your body further, the inability to properly move restricts what you think you can do, leading you to believe that you can't do things you actually could do, resulting in staying at home, withdrawing from activities etc.

After I gave birth to my daughter Laila in October 2019, I had a month of very little pain, probably a result of high amounts of oxytocin and prolactin circulating through my blood and the steady consumption of ibuprofen, to numb the pains of my birth injuries. But then, in early November, the pain returned with a vengeance. I could barely walk a kilometer. I remember we walked to a little Café Pavilion on my birthday, November 2nd, to get waffles. Its 20 minutes from our house but it felt like a hike for me. There are several reasons why the pain might have gotten stronger yet in the end, to me, they all don't matter much because with the body, you never know fully, in any case. Yes, there can be hypotheses and diagnoses, but they will be approximations at best. For me the reassuring effect of a diagnosis, of putting a label on what one experiences lasts for about a minute. Then I am off to the races again, trying to figure out what is

really going on. That can't be all, right? There must be something else, right? Giving something a name is helpful yet not sufficient.

It could have been the little sleep one gets with a newborn, it could have been the weakening of my abdominal muscles because of the c-section, it could have been the hours and hours of forced posture when nursing or a combination of the above or something entirely different that I will never know about. I got injections into my back where the bulged disc was located, I was put on opioids (better for the baby than too much ibuprofen I was told), nothing helped. I was in so much pain I could not sleep, I could not think, I could not eat. And here I had to take care of a newborn. I felt immensely overwhelmed as we shuffled back and forth between my doctor's office and home, baby in tow almost every day. Then, finally, my doctor recommended neurosurgery. It was not what I wanted as it felt like a huge intrusion, but I did not see an alternative. On the day on which we were supposed to depart for our shared two months of parental leave in Thailand, we instead moved into the Charité hospital in Berlin Mitte, where I would be operated the next day.

Since the surgery more than three years have passed. Immediately after surgery I had to lay in bed for about five weeks to minimize the risk of a disc bulging again. Then I went to physical rehabilitation for four weeks, a program where I got physiotherapy and massage, had daily group meditation, and was instructed in specific exercises to strengthen my body. There was still pain but it was not that acute anymore. I loved moving my body and feeling some strength coming back. In rehab, the psychologist on site said to me: "You know, you can stop hoping that the pain will magically disappear. I won't. It's a nerve injury and you have been in pain for so long that you have pain memory. This will take very long. Prepare for that. It will get a little better occasionally but very slowly." That was a hard one. She put her finger on what had

been a central problem. I still really hoped the pain would just be gone one day. I had hoped for this day to come for two years yet it never came. She pointed out that my strategy was set up for failure. Once I had digested it, it was upward from there. I am still scared of pain. When I move in ways that have been painful before, I am awaiting the pain. Even if it doesn't arrive, the apprehension is palpable in every cell. If I experience acute pain in any of the areas that were involved in the initial injury, for example, in my sacro-iliac joint, I call my ostheopath right away and make an appointment.

Over time I have become literate in pain perception, localization, and treatment. I know all the different parts of my body that ache in qualitatively different ways because of the initial injury (one can only speculate what the injury was a result of in the first place). There is the straight up sharp metal-like nerve pain that goes through the whole leg, from the lower back into the foot, usually the inner side of the foot, midway below the arch, sometimes the outer left side. There is tension in my sacro-iliac joint that feels stuck from time to time. There are tense ligaments, fascia, and muscles around my sacrum that I can roll out with a blackroll. There is a tight gluteus maximus muscle that only relaxes if I can relax my inner thighs first. There is fascial pain, or I think that's what it is, from the inside of my left sitz bone down to the foot—I can alleviate that by massaging the tissue around my sitz bone. Sometimes running or jumping on a trampoline is great, just to shake it all up. Being literate in this context means having a heightened awareness based on experience. Its immensely helpful to be able to distinguish different kinds of pain and the exact localization of these pains for treatment yet it can also be a hindrance. Doctors and therapists, for example, are overwhelmed by this. The way they are trained to inquire about your pain allows for only one type on a scalar system from zero to ten. The only way it can be localized is by pointing toward an area on your body or by circling an

area on a one-dimensional outline drawing of a male human body. It is a very frustrating experience to explain your pain in detail to somebody for three minutes and then they ask: “Ok but can you point to the area where the pain is again?” and then I see them circling that area on a blank preprinted human outline sheet which will be filed away and that’s that. The necessity to bureaucratize pain experience flattens an experience of it, literally. I sometimes wonder if I would bother less about my pain if I weren’t interested in knowing and understanding it well. But that is a hypothetical what if, I’ll always be interested.

Introduction

> We are at a point where dance can be something different than what we think it is.
>
> (Deborah Hay, 2019)

I am sitting on the floor, next to Marion, with my torso oriented to Marion, who is sitting on the floor as well. I am holding Marion's heart. My hands are positioned on her chest and on her back right over her heart region and I am supposed to sense Marion's heart—to develop an awareness of the movements of her heart and to investigate the relation of my own bodily responses to her heart. How do I move from Marion's heart? Marion and I are in a two-week research project, led by the contemporary dancer and body worker Angela Schubot who has come from Berlin to teach at *Impulstanz* Festival in Vienna, Austria. Every day, we, a group of nine dancers, meet for six to eight hours in a dance studio, in a park or at a lake and experiment with conscious body movement and perception. In heightened states of bodilymental awareness, we forge new relations to bugs, to moss, to water, to fellow humans, to trees.

Angela's practice is called dance or movement research in the contemporary dance community across the North Atlantic. While dance research's boundaries are fuzzy, dancers define their work as research to differentiate their practice from performance-oriented forms of dance. Dance research is concerned with changing one's bodymind in acts of self-discovery and transformation, consequently changing one's relational entanglements and environments. Dance research means learning to be an intentional sensor. What makes dance research significant for its practitioners is the space and time devoted to discovering, exploring, and extending one's bodilymental agency in movement.

The heart exercise, an act of tender female intimacy, of trusting into something that you can't think yet, of letting your body be moved by someone else's heart, has taught me much but

the "much" is difficult to explain from what I know. Yet it seems imperative to make it explicit; the value of what I learned feels tremendous. This dissertation is an attempt to learn words to describe what I have experienced. And much more so, it is an attempt to show that rich language, tools, and methods for understanding learned and skilled techniques for perception and movement exist already for my interlocutors—professional dancers and dance researchers in the contemporary dance community.

In much of the Western world, professional dance is categorized as an art practice and thus its value for society has been described as primarily aesthetic.[1] In this vein, most scholars of dance have studied professional dance performances similar as to how one would study images or texts. Anthropologists of dance have complicated this object-focused understanding of dance, studying dance as ritual practice, constitutive or transformative of social collectives. Yet, how come we are only beginning to hear of dance as a form of explorative inquiry in few and select publications although the history of experimental and contemporary dance suggests that the practice already emerged as a form of research in the late 19th century (Gehm et al. 2009)? The lack of interest in this newly discovered function of dance is striking at a moment where the number of dancers who claim that the primary aim of their practice is research and not performance is growing fast and steadily (Hardt 2016: 155).

For the past six years, I have apprenticed and collaborated with two dance research groups, who study, respectively, attention and anatomy. What unites the researchers of both groups is that their research practice is firmly grounded in dynamic, physical movement practice.

1 Aesthetic is meant here in the sense of Kant's definition of disinterested, educated judgment in the third critique (e.g., viewing a painting in a gallery), developed out of the 18th century shifting configurations of the art world, rather than in the sense of *aisthesis*, as pertaining to the engagement of perception and affection (Kant [1790] 1987, see Shiner 2001 and Bourdieu [1968] 1993 for social histories of the modern aesthetic). The dance researcher's profession is to be understood in the latter sense, as an intentional working and training of sense perception.

This dissertation is concerned with understanding how these dancers practice research and how specific modalities of contemporary dance, in this case, contact improvisation and the Axis Syllabus, function as research practices and research communities.

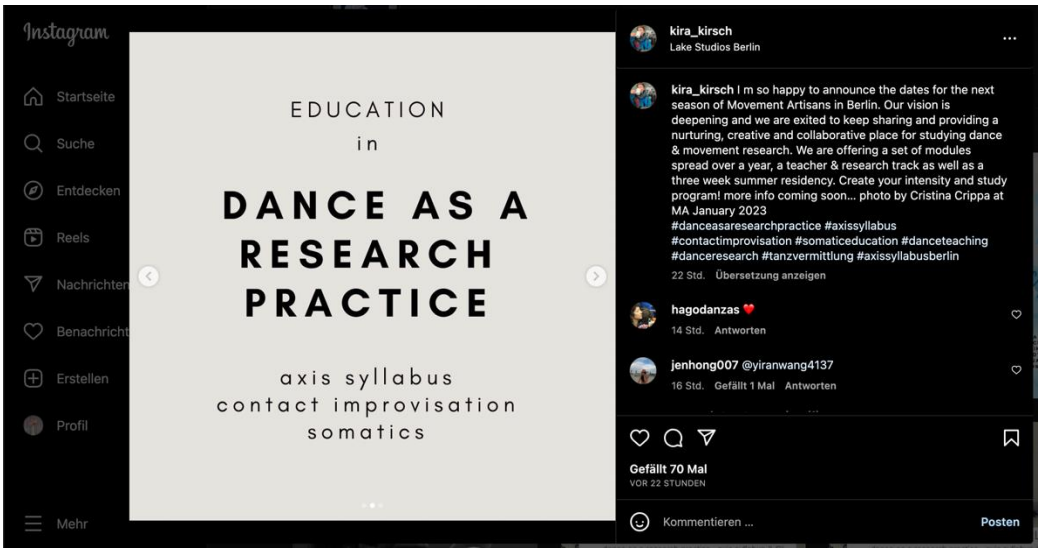

Figure 1: Instagram slide announcing a new training and research cycle of my interlocutors, the Axis Syllabus program *Movement Artisans*. Copyright: Movement Artisans.

Philosophers of art have emphasized the distinct nature of artistic research in contradistinction to scientific research (Henke et al. 2020). Yet beyond making this distinction, there haven't been many qualitative studies of arts practice that support this statement with empirical examples (Kleinschmidt 2018). In the example of dance as research, we will in fact see how aesthetic and natural scientific approaches to research have been closely entangled for the last 130 years.

In analyzing dance as research practice, I do not suggest that dance cannot be understood as performance. Professional, amateur, and folk dancers have been and will continue to be concerned with the performance aspect of the practice, as well as with the physical and social significance of dance. Yet it's inadequate to assume that people learn to dance or join dance companies solely to dance in front of (paying) audiences (Spatz 2015: 6). And the

representational or referential value of dance performance is rarely what matters to dance researchers (Sheets-Johnstone 2011: 424).

Dance researcher Nita Little argues that dance as inquiry and dance as expression are möbidic: they are both available in the same act of movement (Little 2014: 307). Even if the goal of a dance production is explicitly stated to be a performance, contemporary dance productions contain a defined research phase in the production process (Kleinschmidt 2018). The dance scholar Katharina Kleinschmidt, for example, analyzes the rehearsal process of different stage productions, showing how research and experimentation are emergent phenomena with established forms of standardization in contemporary dance (Kleinschmidt 2016: 108). Focusing on the experimental practice of dancers, I aim to bring further ethnographic detail of such conventions to light.

Spending time with the dance researchers, I came to understand that the material they rely on to investigate attention and anatomy are their bodyminds as well as the techniques that pattern their perception and movement, consequently giving form to their bodyminds. Dancers research the techniques of their bodyminds with the same "artisan care" with which woodworkers, metalsmiths and other highly skilled professionals treat their materials (Spatz 2015:46/47). Yet while a woodworker is highly skilled, for example, in the way that she uses a wood plane, her profession is not to reflect on the acquisition process of this technique. Techniques of perception and movement, on the other hand, are observed, altered, and passed on in training, as well as newly developed in dance research (Spatz 2015: 60). In other words, reflecting on one's learning process is integral to the practice itself.

For me, the interesting part is that researching and changing one's own perception and movement techniques and, simultaneously, changing other bodyminds through teaching skills and techniques in classes and workshops illustrates a process-oriented approach to how social structures and norms are reproduced as much as challenged. To put it more formally, social structures are produced and transformed through bodily processes of adaptation, habituation, and inscription.[2] Therefore, what matters is not how dancers think humans ought to be or ought to act (a conceptual normative claim), but how dancers actively alter themselves and others in dance practice, resulting in changed individuals and communities (a physicalmental change imbued with normative valence). This "process- hypothesis" is one I am curious about and thus interrogate historically, ethnographically, phenomenologically, and theoretically as I follow the dance researchers throughout the chapters of this dissertation.

Based on my observations, I propose an extended redefinition of Marcel Mauss' foundational concept of body techniques. While Mauss, Bourdieu, and other social theorists concerned with the physical and material embodiments of culture and sociality tended toward a determinist top-down version of technique and did not have too much to say about specific instances of its entrainment (Spatz 2015: 61), I propose that techniques can be conscious, intentional, relational, and creative. My aim here is, with performance theorist Ben Spatz, to propose techniques as tools for critical thought and agency—as locations for attending to, questioning, and altering conventional or ideological entrainment of mind and body (Spatz 2015: 26). I will call these techniques bodymind techniques, signaling the integrative functioning of mind and body. And I propose that bodymind techniques, in which we apprentice and that give

[2] This change in locating norms and values not on the conceptual but on the experiential plane bears resemblance to Thomas Csordas' embodiment hypothesis. In the early 1990s, anthropologist Csordas proposed that the human body (not a bodymind) is not an object but a subject of culture: bodies enact the values and norms that consequently shape socially and culturally specific forms of life (Csordas 1990, compare as well to Jackson 1989).

form and direction to our action and behavior, carry normative valence. Why can I sit so easily on a chair yet have trouble squatting with my heels touching the floor? And why is this a question about norms?

Inspired and informed by the historian of science Lorraine Daston, I interpret culture "less in terms of symbols and values than in [the sum] of bodily gestures, mental habits, sensory training [...] and the manipulation of materials" (Daston 2009: 808). Studying how dancers research is a study of how bodyminds as biosocial artifacts are shaped in the process of researching and experimenting with the patterning of one's entrained attention and the possibilities of one's dynamic anatomy. In this sense, this project is not about dance as an anthropological object under observation. Rather, dance research serves as a method for the study and enactment of bodymind techniques and I theorize it as such.

Dance as Research Practice

As we will take a closer look in the following chapters, it can be observed that dancers who research share many of their daily activities with social or natural scientific researchers (Spatz 2015: 4). They have designated laboratory space, props and tools, literature to rely on and engage with, research proposals and grants to write, conferences and workshops to travel to, individual and collective research projects to develop. All of them are on the hunt for new methods, tools and ideas. Like an academic researcher, a dance researcher usually divides their time into researching and teaching and profits from the generative synergy of the two. However, dance researchers' main epistemic outputs are changed and innovated perceptual and kinetic techniques rather than conceptual propositions, taking shape in articles or books. If a cosmology consists as much of a perceptual as of a conceptual scheme (Kuriyama, in conversation), this

dissertation seeks to understand how dancers research, experiment and intervene on dynamic perceptual and kinetic schema.

Although the dance researcher's outputs are foremost bodymind techniques and altered bodyminds rather than object-like forms of knowledge, dancers who dance to research collaborate, consult, and train with scholars of the humanities and social sciences and natural scientists on academic publications (Kirsh 2011, Kimmel et al. 2018, Himberg et al. 2018) and exhibit such interdisciplinary work in museums and galleries. In that sense, their expertise flows into scientific, artistic, and public knowledge production.

What differentiates dance researchers furthermore from academic researchers are the ludic and creative elements of their work. These elements are not only openly acknowledged but actively leveraged for intervention and innovation in previously entrained mindbody technique. Although scholars and scientists engage in play and wonder—indeed some sociologists and historians of science have argued that these features are central to scientific innovation and discovery (Dippel 2022, Myers 2008)—they typically perform and represent an image of themselves and their profession as objective and rational to shore up the authority of universal scientific knowledge. In the current order of things, the arts and sciences appear neatly separated. Only the arts, and within them dance practice, can be professional and playful at the same time.

A last distinct trait of dance research practice, especially in contradistinction to the social and natural sciences, and maybe in closer alignment with some of the humanities, is the focus on subjective phenomenal experience as the most direct empirical source for making sense of humans.[3] The dance researchers I worked with actively develop their bodyminds by observing,

[3] Classical phenomenology as advanced by Maurice Merleau-Ponty and as applied extensively to dance by philosopher of dance Maxine Sheets-Johnstone, has the well-known problem however, of relying on universalisms. There is one kind of body that can be known, there is one definite structure to a certain experience, e.g. that of

altering and inventing bodymind techniques. Their perceiving and moving bodyminds form the material and epistemic basis for learning and insight.

Working from subjective and self-reflexive perspective as the dancers do is a strategy that is seldom invoked in the sciences today, with exceptions in phenomenologically guided research, pedagogical or psychotherapeutic settings (Abraham 2016: 29).[4] Within the conventional paradigm of scientific objectivity, there is a worry that research that one undertakes explicitly from one's own perspective is not objective. One reason for this worry are the patriarchal biases that underwrite the (his)story that modern science tells of itself (Haraway 1984, Fox-Keller [1985] 1995, Criado-Perez 2020). One of these biases in particular, the idea that sensual experience is excessive and thus antithetical to reasoned science, can explain, among other factors, how we have come to distrust subjective experience as a source for scientific understanding (Fox-Keller [1985] 1995: 78).[5]

---

dance, in short, one "underlying sameness between all peoples" (Rothfield 2005: 44). Classical phenomenological inquiry has neither accounted for the fact that bodyminds of both the researcher and the researched are historically, socially and culturally specific and thus differ nor that this specificity as expressed in the researcher's sensibilities will bear imprint on their respective research. Hence, Judith Butler and many others critiqued Merleau-Ponty and his descendants (Butler 1989). Can phenomenal first-person experience as the basis for research be recuperated bearing this critique in mind? Many of the dance researchers that I have worked with have studied the philosophy of phenomenology and they would describe their practice as a type of phenomenological inquiry into first-person or communally shared experience. Yet, they usually eschew the essentialism that defines classical phenomenology. Nita Little, a dance researcher that I have worked with extensively and that you will find playing a prominent role in the following chapter on attention, proposes to hold the structures of experience loosely, thus acknowledging that experience is never generic but in fact dynamic (Little 2014: 12). Feminist and queer phenomenologies (Ahmed 2006), phenomenologies of disability (Winance 2006) and of incarceration (Guenther 2013) have shown how phenomenology as method can be reinvigorated and leveraged toward emancipatory ends and does not need to be applied classically toward the end of verifying universal structure of experience. For these "new" phenomenologists, as much as for the dance researcher, phenomenology works as a method to detail the variety rather than the universality of lived experience.

[4] Anthropology might be an exception here, as there are ethnographic traditions that privilege first-person experience and phenomenology, e.g. Jackson 1995, Desjarlais and Throop 2011, and Samudra 2008. More generally, the experience in and of a particular world is the foundational narrative of US American anthropology in the Boasian tradition. However, how much an anthropologist can center their own experience as an object of inquiry is a contested topic. During my project, I have heard frequent warnings of doing too much "me-search", large funding bodies do not fund auto-ethnographic projects and overall, there is very little funding as well as opportunities for publication of auto-ethnographic projects available.

[5] Of course, there are further problems with subjective experience as "data" for scientific research, e.g., problems that arise with respect to the difficulty of standardizing and comparing phenomenal experience.

In response to this critique, *Standpunkt* feminists and feminist philosophers have argued that researchers always bring in their personal perspective and assumptions about the world into their research. The question is whether they are aware of it and actively address this "personal baggage" in their work, or, whether they remain oblivious to their personal biases. From this feminist perspective, objectivity is not a product of detachment from one's scientific objects of study. Rather, objectivity springs from knowledge that is situated, that can be located and is aware of the researcher's own involvement in the research process. In that sense, the reflection of one's experience and action in the research process, as well as one's motifs for the research enrich rather than diminish the quality of one's findings as they make these findings assessable and intelligible (Haraway 1991: 189-191, Abraham 2016: 30). In parallel, dance researchers have argued that dance as research complements conventional scientific forms of knowledge production when dance researchers mobilize their professionally trained bodyminds in subjective experience toward advancing a research project, consciously reflecting on their own positionality, which is, really, more dynamic than positioned (Quinten and Schroedter 2016: 9).

What makes Research Practice scientific?

The dance researchers intentionally frame their work as research, as experimental and exploratory practice, and as laboratory-like.[6] Thus, and although they repeatedly highlight their

[6] On the difference between 'experimental' and 'exploratory' see Ahrens insightful monograph Experiment und Exploration (2011). In short, Ahrens proposes 'exploratory' and 'experimental' as two styles or paradigms of disclosing the world ('Welterschließung'). Whereas the exploratory science, in line with the scientific practices and attitudes of its time, was about discovery, description, definition and delineation of the real world, apperceived as an unknow blank canvas, experimental science is the mature modern sister. It knows that the world is fully described, retreats into closed and artificially demarcated spaces to 'translate' rather than to 'describe', employs technology and tools to manipulate and alter. Within the experimental paradigm, artifice and historicity of epistemology and ontology can be reflected upon. The dance researchers themselves operate largely in what Ahrens would describe as the exploratory paradigm yet set up experiments in face of the complexity of the unknown.

practice as distinct from scientific research, the natural sciences remain the frame of reference and benchmark for the dance researcher's work. That is the case not only for dance researchers themselves but for scholars studying their practice as well. The insights gleaned from dance research, often blended under the conceptual shorthand "embodied knowledge"[7], are destined to be what science is not, e.g., non-verbal versus verbal, embodied versus cognitive, irrational versus rational (Kleinschmidt2016: 100). At the same time, questions of race, sex, gender, and ability which are increasingly negotiated in dance performances on contemporary scene are noticeably absent from dance as research, emulating the value neutrality of the natural sciences.

My aim with this project is to push against this dichotomy of scientific versus artistic or other disciplined forms of research. With feminist, intersectional, postcolonial philosophies of science I would like to ask instead: why should we continue to accept the narrative of Western science, neatly organized into professional and institutionalized disciplines as the standard for what counts as valuable scientific research? In the words of historian of science Eric Gurevitch: "Can we tell a history of science that treats the boundaries of knowledge as changing and that includes those ways of knowing dismissed as lowly, non-modern, manual, and non-theoretical?"[8] What kind of value and use could dance research attain if not measured against the dominant model of scientific research?

Feminist philosopher of science Sandra Harding thus proposes a more inclusive definition of science. She argues that people generally have an interest in and a proclivity for science. In

[7] Philosopher of mind and dance argues that all that the term embodiment does is muddying the waters conceptually (Sheets-Johnstone 2015). To speak of something as embodied short-circuits the lived experience and the phenomenological insight of that precise moment. How does one experience the embodiment of culture, precisely? Relying on embodying as a practice, so Sheets-Johnstone, generates static rather than dynamic understandings of everyday life when objects, e.g., culture are readily incorporated into other objects, e.g. bodies.

[8] https://www.bostonreview.net/articles/how-not-to-tell-the-history-of-science/?fbclid=IwAR1nOIhCtty0NRitvxU0OOpRpbB_flMzyVxiyjIuFo8HEihiTiJ6olUaAEQ, last accessed 03/13/23.

her words, science is "a universal human impulse to understand ourselves and the world around us in ways that permit effective interactions" (Harding 2008: 4). Western science, however, has achieved the monumental task of making only its own products appear like valid and legitimate science (Wootton 2016, Poskett 2022). What is not produced in universities or state-funded research institutions, which are disproportionately located in the Global North although owing a great deal to earlier sciences of the global South (Poskett 2022), is not worthy of being called scientific research. Hence, terms had to be invented to account for research practices that were not disciplined, standardized, institutionalized, or Western enough to count as science. Such terms are, among others, bricolage, citizen science, practical knowledge, occult, witchy or magical practices, artistic forms of knowing, folk traditions, local wisdom, indigenous, embodied, implicit or habitual knowledge and so on.

The boundaries of science are drawn geographically and conceptually. Not only were and are forms of research from the Global South devalued, the boundaries drawn between "proper" Western scientists and mere artists are similarly products of political, economic and normative struggles over what counts as legitimate knowledge. [9] Historian of science Pamela Smith argues, in this regard, that modern science owes a great debt to what she calls "artisanal epistemologies": the skills and techniques of craftspeople that center experience, observation, experimentation and manipulation (Smith 2022). Without provincializing achievements of Western science, I'd like to make room for what is an important question to ask: Why do we draw the boundaries of what counts as "real" scientific research where we draw them? Why is one local form of research practice consistently valued higher than others?

[9] As much as the separation of the arts and the sciences is historically grown and politically intended, so is the split of art and artisanship, itself playing out in the 18th century (Shiner 2003).

In search of diversity in thought and practice, I have often turned my attention to what appears illegitimate, peripheral, or esoteric. In that spirit, I invite the reader to follow me in observing and understanding professional dance researchers as they observe, experiments with and train perception and movement.

Trusting the dancers to guide us toward an innovative insight may require the suspension of one's own habituated epistemological categories in which the arts more generally, and, in particular, dance, the object-less art, are not seen as locations for inquiry and knowledge production. Within the modern differentiation of the arts and the sciences, the role of the arts has traditionally been mimetic, to imitate and represent nature rather than to observe and define it (Auerbach 2013). The role of the (natural) sciences has been to describe, to understand and to ultimately control nature. However, when observing dance research practice and studying its history, it becomes apparent that a dichotomous model of the arts and sciences may be clear-cut in theory but not in practice.

Dance researchers frequently collaborate with natural scientists on their own accord or are drawn into natural scientific research projects because of their expert skills. Both dance researchers and scientists ask similar questions about technique, training and personhood and engage similar resources to do so. As dance research emerged as a scientific and aesthetic endeavor, involving natural scientists and physiologists from the beginning, it is no surprise that today's dance researchers are collaborating with scientists and study natural science literature as well. Nita Little, who heads the ISSC, for example, has been influenced in her thinking by Gibsonian ecological theory of perception and development, by the work of developmental

psychologist Daniel Stern, by philosopher of mind Alva Noë and by developments in quantum physics.[10]

Quantum physics especially might seem a stretch, but it is apt to remember that science, society, and culture are never as separated as one may believe (Latour 1993). As Nita began to develop her research on attention in San Francisco and Santa Cruz in the early 1970s, elements of quantum physics theory were not just relevant to physicists but had become an approach to make sense of the structure of reality in California's counterculture movements. Historian of science David Kaiser, whom Nita references in her dissertation, shows how a group of hippie physicists at UC Berkeley, developed a theory of quantum mechanics that was neither funded by nor intended to serve technoscientific interests yet would reorient the field of physics as much as serve as a fitting outlook on the world for a heterogenous field of somatic practitioners, psychologists, dancers, musicians and cyberneticians of which CI dancers were very much a part (Kaiser 2011). In Nita's words: "The new physics in general and quantum mechanics in particular gave scientific credence to notions that we live in a world of uncertainty, that matter and energy are an inseparable dynamic, and that observers impact outcomes. [...] [P]hysics proved to have cultural impact as an alternative to spirituality; it was a source for discerning and explaining invisible reality. [...] Quantum mechanics answered many New Age alternative views that supported Mind Body Spirit unity and disharmony. On the level of culture, "reality" seemed to be not so nailed down as it had appeared to be" (Little 2014: 23). My point here is: If we want to understand concrete instantiations of research practice and their historical emergence, a binary

[10] Compare Nita's idea of enhancing our perceptual abilities and thus the way we can experience the world to this citation from Noe, for example: "We achieve access to the world around us through skillful engagement; we acquire and deploy the skills needed to bring the world into focus" (Noë 2012: 2).

understanding of the arts and sciences will hinder our understanding of the variety and heterogenous character of research practices.

Sensible Politics

The dance researchers I observed and collaborated with for this project conceive of their practice as relevant beyond the realm of dance. They aspire for their work to have social and political impact while simultaneously doubting their power to change things. Dance researchers argue that habits, patterns and possibilities for perception and movement, and, consequently, for action, are largely shaped by the socio-cultural and natural environments we inhabit (Little 2018).[11] An example for the normatively imbued patterning of movement is that in traditionally patriarchal societies, female-identifying persons tend to take up much less room in public space than male-identifying persons. Female-identifying persons often sit with legs crossed while a typical seated pose for male-identifying persons is to sit with legs spread ("manspreading"). Male-identifying persons move their arms while walking, while female-identifying persons often hold their arms in front of or close to their bodies (Young 2005).

A similarly culturally and socially informed patterning concerns human perception. How a person enacts their sense perception, consciously or unconsciously, is influenced by their experiential history in the respective normative environments in which they are embedded (Katan Schmid 2016: 138). I will argue in more depth in chapter four, techniques for perception and movement are coupled. Phenomenologist Maurice Merleau-Ponty recognized the

[11] In a sense, the dancers provide a heuristics that matches the anthropological embodiment hypothesis. First raised by Michael Jackson in the 1980s and reiterated with different nuance by Thomas Csordas in the 1990s, the embodiment hypothesis asserts that the human body is not an object but a subject of culture: bodies enact the cultural values and norms that shape human habits and practices (Jackson 1989, Csordas 1990, 1993).

synchronicity of perception and movement when he wrote: "In fact, every habit is both motor and perceptual" (Katan-Schmid 2016: 137). For example, "observers are attentive to pictures in relation to their habitual patterns of moving their heads and directing their gazes" (Katan-Schmid 2016: 137, see as well Gibson's theory of environment-perceiver interaction (Gibson 1986)).

Dance researchers believe, in short, that techniques of perception and movement are imbued with social, political, and ethical valence and are far from value neutral. While social scientists concede that perceptual and kinetic techniques are socio-culturally shaped, they align with the majority of natural scientists, who work on habit and skill, on the view that techniques of perception and movement are largely unconscious and automatic once learned. The dance researchers I study doubt this conjecture: all they do in their practice is to consciously observe, form and reform techniques of perceiving and moving. In fact, the job of the dancer as researcher is exactly to "question automatic or naturally formed behavior" (Hay 2019) and to leverage the plasticity of human modes of perception and movement toward new potentials.[12] Since they practice intentional entrainment of bodymind technique, the dance researcher's practice complements and enriches previous theories of bodymind entrainment which predominantly describe the latter as automatic, habitual or unconscious.

It was their ability to consciously observe and reshape patterned movement that brought contemporary dancers into an interdisciplinary working group on Parkinson's disease at the University of Freiburg, in which they collaborated with neuroscientists and Parkinson's patients. To move consciously and intentionally is a valuable skill for Parkinson's patients, which they can learn from dancers:

[12] Citation taken from a lecture performance which Deborah Hay, a choreographer, who was central to the emergence of postmodern dance in and around the community of the Judson Church in the early 60s, gave at the Deborah Hay Symposium in Berlin in August 2019.

> …[Parkinson's] disrupts normal neural circuitry, but its possible for a person to develop alternative methods – cuing systems -- to initiate and control movement. We can substitute conscious activity for what once was automatic movement. Musical and visual cuing, the use of touch, and other forms of sensory feedback are all means of retraining the brain to talk to the muscles. [...] Perhaps most important of all, dance involves the practice of conscious movement every day. A dancer is constantly directing the body, talking to. It. (Quinn 2013, c.f. Gillette and Pietsch 2016: 185).

What becomes apparent from this quote is not only the dancer's ability to agentively direct perceptual and kinetic techniques but to teach this ability to others, resulting in changed perceptual and kinetic capacity.

Because patterns of perceiving and moving are *learned*, they provide a field for intervention. Dancers who dance to research want to reshape and devise innovative techniques for perception and movement.[13] In a sense, they want nothing less than to reimagine how we perceive and move and, consequently, who we are and how we can act in the world.[14] To achieve this goal, they engage perception and movement as transformative techniques.

If capitalism's disciplining measures have mechanized the human body, so that some think that human brains function like processing computers, resistance must begin with the re-appropriation of our bodies (Federici 2016). Echoing the dancer's stance, the philosopher Silvia Federici argues that dance is "central to this re-appropriation [because] the act of dancing is an exploration and invention of what a body can do" (Federici 2016). In this sense, becoming aware of, retraining, and extending one's possibilities of perceiving and moving and thus doing, can be

[13] Compare this to Katan-Schmid's definition of dance as a "thoughtful, innovative and knowledgeable process of shaping" (Katan-Schmid 2016: 139, emphasis mine).

[14] This goal differentiates the dancers from members and promoters of wellness and fitness communities. In fitness or wellness culture, the goal is, ultimately, although often not made explicit, to change how a body looks (body image). Such work on the self can be understood in line with theories that have argued that social and political issues are increasingly performed and represented on and through bodies in a time characterized by the use of mass media and consumer culture (Turner [1996] 2008). What the dancers do, on the other hand, is not to shape bodies so that they look different (and thus symbolize political or social belonging). Rather, they (re)shape bodyminds so that they can perceive and act differently.

a tool of political critique and intervention. In the words of dancer Doris Uhlich, the body becomes an "epicenter of action and transformation."

The kind of political intervention dance researchers put forward is not language-based. Rather, dance researchers hope to incite social and political change through bodilymental learning, growth and transformation. If bodyminds are the enacting subjects of culture, then a socio-cultural community is transformed by reforming its bodyminds and the techniques that shape their capabilities. This work is slow, as slow as the timing of one's body can feel when the ego wants to be five steps ahead already: it is one bodymind at a time, often in a collective setting. And habituated techniques are neither easy to recognize nor to change. Nevertheless, many dance researchers I spoke to have the ambition that their work will slowly influence and change individuals and communities of movers through dance research classes, workshops, talks and seminars.

What drew me to the dancer's interest in understanding and changing perceptual and kinetic technique, is that their practice extends beyond critique of hegemonic techniques of moving and perceiving, inscribed top-down through systems of power and domination, e.g., manspreading as an instantiation of patriarchal culture. Rather, and qua their professional expertise in observing and reforming bodymind techniques, the dancers offer a heuristic for taking intentional action in observing, understanding, and reshaping individual and collective techniques of body and mind and the norms and values that they carry. Dance researchers I worked with seemed to be optimistic based on their technical efficacy: they often chose to articulate the potential of what a human as perceiving and moving human *can* do and not how she is limited in her agency because of a given social structure, e.g., her class affiliation.

It is important to point out in this regard that dance researchers are in a unique position. They can focus on potential and on innovation because their profession is exactly to do so. Most ordinary people move according to norms and rules that they are not actively reflecting on even if they work on actively shaping themselves in the gym. Yet, the dancer's profession is precisely to question the norms that undergird perception and movement to perceive and move in new ways.

Dancers researching don't lift an arm to bring an apple to their mouth, they lift an arm to try out where the arm can reach and, maybe, to explore how the arm's reach will affect the balance of their torso, or what emotions arise when one lifts one's arm. In that sense, their movement does not have a built-in functional goal. Foremost, their movement and thus their research practice is process-oriented rather than goal-oriented. Reminiscent of how psychologists describe early childhood development, dance researchers move to observe, explore, and experiment. Although they can't easily dispose of their own physical enculturation, be it in a specific dance tradition or in national or family heritage, their job is to invent new rules of the game based on exploration within a discreet environment.[15] In this sense, they have not only the appropriate training but also a larger scope of action to recognize and change patterns of perception and action than people not professionally concerned with these patterns. In short, the dance researcher's positionality favors a focus on the possibility of what a bodymind can do.

On a conceptual level, the dancer's generative practice may thus show a path to detail human agency within classical mechanistic or biopolitical conceptual outlooks which analyze how social structures shape human action top-down. The problem with such determinist accounts is that they often presuppose the human body as passive object (Körper), for example, as a site of

[15] I borrow this analogy of rules of the game form the philosopher of dance Einav Katan-Schmid (2016).

civilizing or disciplining processes.[16] More recent theories emerging from the sociology and anthropology of the body have pointed out this lack, proposing to study the body as subject (*Leib* or *KörperLeib*) that is agentively sensing, living and (re)acting to its environment (Abraham 2002 and 2011, Meuser 2004). However, broadly speaking, I believe there is more room to theorize the body as *agens* since social theory on the body "is [still] more likely to cite the social, cultural and historical processes that *shape* bodily experience, than to dwell upon their felt results" (Rothfield 2005: 51). "What does it feel like to be dominated?", is an important point to consider if one wants to test whether "experience bears out genealogy" (Rothfield 2005: 51). Rothfield's judgment pertains especially to the anthropology of dance, dominated by postmodern readings of "dance as texts" (Adshead-Lansdale 1999). Closely observing how people enact their bodyminds and how they experience these enactments can help us understand whether interpretive accounts are adequately theorizing social life.

My hunch, learning from my interlocutors and collaborators is that there is more nuance in individual or collective agency than a lot of social theory can imagine. In this case, agency is played out on the level of dynamic bodymind practice, shaping patterns of perception and movement.[17] Writing about bodymind technique, I aim to contribute to research that theorizes the "social genesis" of bodymind intentionality and agency (comp. Meuser 2004). Not forgetting that agency itself is a product of social conditioning, I aim to answer to Carrie Noland's question: "How does individual human agency exert itself despite the enormous pressure of social conditioning" (Noland 2009: 1)?

[16] This critique of structural overdetermination has been levelled, amongst others, against Bourdieu (King 2000, Lovell 2000, Fuchs 2017) and Foucault (Grosz 1994, 122; Shilling 1993, 80; Butler 1999; Blackman 2008, 28).
[17] Agency does not have to be as active as that of the dancers to enact resistance to established social order and protocol. Resistance can be articulated in passivity, sensibility, receptivity, and serenity (Meuser 2004: 208).

An Anthropology of Technique

Dance research space is an expert environment whose constraints and possibilities differ from spaces where techniques of perception and movement are neither the object of study or a vehicle for individual and social change. Precisely because of this, I have chosen dance research as an ethnographic location. It is here that I can observe perceptual and kinetic techniques because they are explicitly marked in the process of researching, learning, adapting, and inventing. Dance research, with its rich interdisciplinary history that straddles the arts and sciences is, to me, an exciting location to study humans as socio-cultural and biological beings (Ingold 2011) because dancers consciously understand and study themselves in such non-binary fashion.

What the dance researchers have shown me, and what I hope to show you, is that bodymind techniques are biologically and culturally emergent and developing phenomena and to study them, we need all the existing disciplined forms of inquiry we have on one deck. I propose to understand techniques as nothing less than the building blocks of life as biological and socio-cultural. Variations in bodymind technique lead as much to behavioral or even physiological change in individuals as they induce cultural difference and change. With anthropologist Greg Downey, I vouch for cultural-biological dynamism, recognizing that techniques shape our bios when "gene expression in muscles depends upon their use, that skills training modifies the body's neural systems, and that such basic traits as bone density and composition are affected by behavior patterns" (Downey 2010: 35). And, at the same time, techniques shape people as socio-cultural beings. Transmitting and enacting specific techniques, we form distinct selves and communities. How do language, culture and sociality grow out of skillful bodymind dispositions? Research on embodied learning suggests, for example, that conceptual

development and understanding begins in skilled body movement (Abrahamson and Sánchez-Garcia 2016: 233). How do bodyminds change and adapt, being always imbricated in and responding to dynamic social and cultural worlds?

When bodymind techniques are taught, trained, and learned, they are not passed down as cultural artifacts. Rather, they are experientially discovered by every apprenticing bodymind. In learning, techniques are adapted to their practitioners' capacities and environments. In this process, variation is the rule rather than the exception (Sperber and Hirschfeld 2007, cited from Downey 2008: 210). Simultaneously, techniques, while they are individually taken up and transformed can nevertheless be conserved and handed on (Carlisle 2014: 15). In the words of anthropologist of dance Brenda Farnell, memories remain with us not only in words but in the patterning and variation of our bodyminds (Farnell 1999: 353). Thus, if we observe how such bodymind techniques are trained and learned, we witness what Greg Downey calls "enculturation" (Downey 2008: 2010) and Tim Ingold calls "enskillment: the development of learned capacities, [rather than as the internalization of collective representations]" that together form what we understand as culture (Downey 2008: 210, Ingold 2000: 416-417).

In centering bodymind technique as an analytic category, I hope to get an anthropological grip on something that can appear all too elusive: the trained patterns that structure how we perceive and move. The crucial points for me are that if we don't recognize techniques as learned, actively enacted practices with normative valence,
we first can't study how they register, differ, adapt, and travel across individuals and communities.[18] And, second, we cannot recognize them as a plane for intervention. Bodymind

[18] Noland agrees that techniques have been studied rarely and adds to this that even affect studies, "has confined itself to exploring the ways emotions rather than kinesthetic sensations function in the process of individuation", thus leaving body movements and kinesthetic experience out of the picture. (Noland 2009: 4).

techniques will appear to us "as timeless facts of bodily life, and we are at loss to understand how things could be otherwise, or to formulate criteria for asking if things should be otherwise" (Berson 2015: xiii).

Scholars such as Norbert Elias or Michel Foucault were interested in chronicling "technologies of self" as the histories of how individuals (and communities) act upon themselves (Spatz 2015: 34). I propose to first understand in more detail how these techniques of self function in processes of observing, training, adapting, and inventing them. By studying how bodymind techniques are learned and enacted, we can ascertain culturally specific varieties of bodymind techniques instead of one culturally or biologically determined blueprint (Sklar 2008: 87). From here, we may look at how they are employed toward the end of effecting change in individuals and society, politically as much as biologically.

For a study of bodymind technique, I leverage resources from the humanities and the social and natural sciences, assigning priority neither to mind nor body (Farnell 1999: 347), to culture or bios. With the dancers, I imagine research outside the controlled model environment of a natural scientific lab yet informed by a critical reading of natural scientific studies, taking human biology seriously and not hiding behind vague phrases like "knowledge taken into the body" or "culture manifesting in flesh." Pierre Bourdieu's descriptions of bodily learning in his habitus theory, for example, avoid body-mind dualism yet Bourdieu failed "to incorporate any evidence of organic or psychological processes [leaving us] with a bloodless, nerveless abstract 'body', a continual problem for exclusively cultural discussions of embodiment" (Downey 2010: 34). If we, as anthropologists, collaborate with natural scientific research on bodymind techniques and their learning, we take responsibility for defining our biology (Haraway 1991: 181). How bodies and minds are understood, enacted, and treated should not only be negotiated

on the terrain of the natural sciences. With feminist theorist Elizabeth Wilson we can question the dogma that "an examination of the body or its parts cannot explain the nature and variety of human social systems" (Wilson 2015: 24) without forgetting about the rich and deep explanations of human social and cultural difference that our own discipline has to offer. In following a tradition of bio-social-cultural-medical anthropologists and anthropologists of the body, I propose to engage productively with the sciences that currently define our biology (compare to Haraway 1991: 81). This can be done, for example, by further developing a "conceptual toolkit for reading biology" (Wilson 2015: 3) that can extend socio-cultural anthropology beyond its "dependency on social constructivism" (Wilson 2015: 4) and toward actively (re)shaping how our human minds and bodies are understood by governments, doctors, insurances, international institutions, and medical schools and thus, how we are governed and treated. In this regard, anthropologists and psychologists Corwin & Erickson Davis propose a common language that can be used to talk across the bounds of the natural and social sciences (Corwin & Erickson Davis 2020).

I admit, my proposal is a strong wish rather than a fully actualized plan. Writing this dissertation, I realized how difficult it is to engage multiple communities and literatures of research simultaneously as a single writer. I have no solution here other than to vouch for more disciplinary and interdisciplinary teamwork. Where are the anthropology labs and research groups, where are the scientist's philosophy reading groups? I will, however, provide an overview of the communities of research and thought, in which I contextualize this project.

Research Contexts

Anthropology of Dance

Anthropologists have underlined the significance of dance practice ever since the first dance ethnographies were published in the 1930s (Sachs 1937, Dunham 1938, Mead and Bateson 1942, Bateson 1944, Kurath 1960). While early studies of dance were evolutionary (Schlesier 2007: 132, see as well Williams 1976), the study of body movement turned into a question of culture with Boas' work on dance (Boas 1944) and Mauss' seminal essay *Les Techniques Du Corps* (Mauss 1936). Apart from Mead's and Bateson's theory of human performance (Ness 2008), anthropologists did not think of bodily practices as constitutive but as indexical of the social milieu and cultural values of [their] makers (Ingold 2013: 7). To change this course of direction, Victor Turner collaborated with theater scholar Richard Schechner to shift the study of performance from text and signification to embodied action (Schneider 2011, Schechner 1985, Turner 1986). But the fruits of this labor led to the establishment of performance studies and did not register significantly in anthropology. Since then, anthropologists have studied various art forms (Ingold 2013, Schneider and Wright 2010, 2013) but have paid comparatively little attention to dance (Peterson Royce 2004). Monika Woitas argues that the reason for this is cultural: Judeo-Christian written culture and Aristotelian aesthetics, which have defined much of Western scholarship including anthropology, had little room to spare for an art form that is perpetually dynamic and decidedly conceptualizes itself as such (Woitas 2001).

Representation and language are the guiding paradigms (Peterson Royce 1977) for the anthropology of dance and, consequently, scholars have examined dance under the following four rubrics: (1) according to its function, (2) according to its structure, (3) as a language, and (4) as a form of knowledge. Most anthropological studies of dance fall in the first rubric and

examine a culturally specific dance practice with regard to its larger function in a given society. When analyzed according to its function, the practice of dance is read as symbolic rather than as productive of cultural norms and social life (Pallasma 2009). Hence, what is particular to dance practice cannot have an impact beyond the realm of dance. In contradistinction, I propose that dance research provides insight into how bodymind techniques are trained and innovated as constituents of cultural and patterns that extend beyond the dance space.

To overcome functionalist and evolutionary explanations of dance, anthropologist of dance Anya Peterson Royce promoted an investigation into the form, structure, and rules of dance (Peterson Royce 1977). Her work laid the foundation for the subgenre of the anthropology of dance in the US. Laying out the principles for an anthropological study of dance, Royce was concerned with providing an ontology of dance rather than with studying dance as process. Answering to a more recent call of Peterson Royce to conduct ethnography in the dance studio rather than in front of the performance stage (Peterson Royce 2004), I aim to study dance as skilled, exploratory, and creative practice.

Anthropologists of dance Drid Williams (1976, 1991), Adriane Kaeppler (1978, 1993), Judith Lynne Hanna (1979) and Deirdre Sklar (1994, 2001) all developed language-oriented models to study dance. Their approaches differ greatly, from movement being understood as completely analogous to referential language, where movements are broken into segments that are paired with morphemes (Birdwhistell 1970, Kaeppler 1978) (most linguistic gesture scholars still adhere to this view); over a modeling of dance onto a non-representational theory of language (Williams 1991); to a coupling of semiotics with systems theory (Hanna 1979). In these linguistic or semiotic approaches to dance, anthropologists examine dance as a form of communication that parallels and supports written or spoken language. Debates center on

meaning and interpretation (Novack 1990, Ness 1992, Kaeppler 1993, Sklar 2001) and all these anthropologists share the goal of producing a coherent and systematic theory of dance as an expressive, meaningful, communicative structure.

While Kaeppler pointed out early that a symbolic linguistic model can only penetrate the surface in an analysis of dance (Kaeppler 1978), the analogy of dance as a "body language" has been hard to shake off. However, to conceptualize dance as language limits the study of dance because it presupposes the same structure of communication for body movement as for spoken language, thus relying on the norms and rules of language for capturing, systematizing, and interpreting movement.

Yet, why should language guide the study of body movement in dance in the first place if language itself is only one style of body movement? The anthropologist Thomas Csordas, for example, argues that if embodiment is to attain the status of a paradigm in anthropology, it should be possible "to construct an embodied account of language, typically the domain of linguistic, semiotic, and textual analyses" (Csordas 1990: 23, see Sheets-Johnstone 2011 and Berson 2015 for different versions of this argument).

This research project thus departs from an interpretation of dance as a referential system. Instead, it will focus on dance as a research practice that investigates the flexibility of kinetic and perceptual techniques. In this sense, I do not inquire into how dance is symbolic of something but how dance shapes and reshapes the dancer's bodymind and, simultaneously, her biosocial and cultural environment. I propose an understanding of human bodyminds and their habits habits as *plastic*, that is, as available to adaptation, contributing to a growing conversation on interaction in dance anthropology.

The dissertation aligns with the small body of phenomenological and auto-ethnographic research projects on dance that conceptualize dance as an interactive, physical, and fundamentally different medium than language (Noland and Ness 2008; Meyer et al. 2017). Anthropologists of this line of research argue that dance cannot be expressed adequately within a representational paradigm of language (Butterworth and Wildschuth [2009] 2017: 5; Samudra 2008: 665). Instead, they foreground phenomenological insight into the dancer's experience.[19]

Finally, I seek to enrich the anthropology of dance by shifting the focus from *dance as performance* to *dance as research.* So far, anthropologists have studied dance chiefly as a performance practice and thus have predominantly examined dance performances. Consequently, they have framed time spent in the dance studio as a rehearsal process undertaken to the end of putting on a performance. However, the study of the performance dimensions of dances allows solely for a limited grasp of dance practice (Quinten and Schroedter 2010: 10) and the opportunity to study dance in its function as a research practice is missed. Following Peterson Royce's call for anthropological research into the ways in which movement patterns and techniques are recognized and shaped in dance practice (Peterson Royce 2004: 2), I shed light on a purpose of dance that hasn't been adequately theorized.

Interdisciplinary and Artistic Research and Knowledge as an Object of Anthropological Inquiry

If a goal of contemporary dance practice is research, one way this goal can be theorized, beside understanding the interdisciplinary emergence of dance research which I'll discuss in

[19] The anthropologist Kim Samudra, for example, thinks anthropologists can render into discourse what informants consider verbally inexpressible yet what is nevertheless consciously available to them (Samudra 2008, 666, compare to Kimmel/Preuschl 2016). She criticizes Bourdieu's assumption that bodily experiences that are not verbalized remain unconscious for its conflation of discourse and consciousness (Samudra 2008, 666).

more depth in chapter one, is in the context of a growing body of literature on artistic and interdisciplinary knowledge formation (McNiff 2013, Hannula et al. 2014, Cotter 2019, Haarmann 2019, de Assis and D'Errico 2019, Henke et al. 2020).

Typically, we still think of research as part of modern science, be it natural, social, or humanistic. It has been less acknowledged and understood however, that artists research as well, thereby generating knowledge (Abraham 2016: 19). Philosopher, artist, and professor for design research Silke Haarmann argues that arts practice has always engaged elements of research, as can be seen in the practice of polymaths such as Galileo. For Haarmann, today's significance of the arts as research practices can be traced back to four related developments: first, the politicization of the arts and the questioning of existing knowledge hierarchies since the 1970s; second, the conceptualization of the arts since the early 20th century; third, the academization of the arts, supported by the Bologna process and fourth, the increasing aestheticization of our life worlds through contemporary media and visual culture (Haarmann 2019: 85). In the context of dance research, Haarmann's first and third point seem to be applicable. Like other arts practices, yet with different nuance than artistic projects that understand themselves as primarily political, dance researchers conceptualize of their practice as embedded in and contributing to politics. And the academization of the arts is certainly influencing dance research. Several dance researchers hold PhD's in academic disciplines or have completed practice as research PhD's, academic literature is valued highly as a source of information for research practice, scientific methods are emulated and collaborations with scholars and scientists appear desirable. However, in her description, how the arts and sciences have influenced each other mutually and for much longer than the Bologna reform. In the context of dance research, this mutual emergence reaches back into the late 19th century (more on that in chapter three).

Projects such as the Berlin University of the Arts special research project "Knowledge of the Arts", the Institute and Journal for Artistic Research, practice-based PhD programs in the arts, arts funding explicitly aimed at research and reforms to evaluate procedures of funding agencies, as to account for transdisciplinary research and arts-science collaborations, signal academic and public interest in artistic research and knowledge. In this regard, we may think of the increasing significance of artistic knowledge as part of a larger reorganization of knowledge economies and hierarchies. In this reorganization, interdisciplinary projects that draw together methods and insights from the natural and social sciences and the arts are tasked to foster innovation for societal projects whose complexity cannot be tackled with disciplined expertise (Born and Barry 2013).

Books like Henke et al.'s *Manifesto of Artistic Research* (2020) define and proclaim the value of artistic research and knowledge generation. However, we have few empirical investigations into how artists research (Kleinschmidt 2018: 6). With this project, I aim to contribute ethnographic insight to how artists, in this case, dancers, practice research day to day. Anthropologists of science and technology have observed and analyzed research practices of the natural sciences, showing how natural scientific standards and methods unfold in their respective cultural and historical environments. I propose that if artists, in this case contemporary dancers undertake research, we may look at their research practice and research outputs in a similar manner. Closest to my own work in this regard is Katharina Kleinschmidt's dissertation on elements and routines of dance research in the rehearsal process in detail (2018).

While anthropologists of art emphasize art practice as a form of knowledge (Schneider and Wright 2010, Ingold 2013), there are few anthropologies of dance that highlight the knowledge-generating value of dance. If there have been such anthropologies, they have focused

on specific significant figures or performances in dance (Kleinschmidt 2018: 31). Two exceptions are edited volumes that followed a conference of the German society for dance research, both on the theme of dance as research practice (Gehm, Husemann and von Wilcke 2007, Quinten and Schroedter 2016). Another exception is the above-mentioned dissertation of Kleinschmidt, in which she theorizes two kinds of dance knowledge, alternative embodied knowledge or choreography as critical practice, in the larger context of the dissolution of boundaries between the arts and sciences (Kleinschmidt 218: 27). If we branch out to dance studies more broadly, there are ethnographically or practice-theory inspired studies that highlight dance as knowledge culture, as knowledge generating practice or as research practice (Huschka 2009, Hardt 2016, Klein 2014).

As you read through this dissertation, you will see that describing dance as research practice is a blessing and curse at the same time. It's important to theorize artistic practices and dance research in particular as research practices to question the existing hierarchy of knowledge in which the natural science's knowledge reigns superior to artistic knowledge. And while it's important to show the entangled histories of the arts and sciences, it matters at the same time to contour the distinct character of artistic research (see, e.g., Mersch 2013).

The curse, however, in describing dance practice as research practice, is that the natural sciences remain the (implicit) benchmark for one's description of artistic research. In comparing artistic to scientific research, we look at artistic research through a particular lens that may make it difficult to account for features of the practices that we don't already expect to see. Moreover, the natural sciences remain not only the benchmark for me, as the observer or for my readers, evaluating the research of the dancers that I write about. As I describe in the following chapters, artistic research itself emulates academic, or natural and social scientific research, drawing

increasingly from these sources and operating within scientific and scholastic systems of methods and references (Kleinschmidt 2010: 31).

The way I chose to navigate this tension is to highlight it as I see it playing out in my own and in my interlocutors' thinking. Furthermore, I chose the two dance research groups that I discuss because they were for the most part conducting their research independently and were only actively collaborating with select few social and natural scientists at the time. Most importantly, in these collaborations, dancers took the lead in research design and practice, whereas in many contemporary art-science collaborations of dancers and scientists, that is not the case. Usually, cognitive scientists and psychologists recruit dancers to experientially test a hypothesis that is guided by the concepts and tools of their scientific discipline, granting methodological and epistemic authority to the science but not the art side of the collaboration (see, e.g., Kirsh 2011).[20]

Bodily Learning and Skill

Finally, I contextualize the research of this dissertation vis-a-vis anthropological, philosophical, and interdisciplinary research and debates on skill, expertise, and learning.

Anthropologists of the body, in multiple ways, have theorized human bodyminds as intelligent (Scheper-Hughes/Lock 1987). Beyond assigning value to the fact *that* bodies know, this project shows *how* bodies come to know as I observe the learning, teaching, and developing of bodymind technique (Sheets-Johnstone [1966] 2015). Thus, I aim to continue projects such as

[20] To describe interdisciplinary legacies and the increasing number of interdisciplinary research ethnographically, Silvast and and Foulds outline a 6-dimensional framework for a sociology of interdisciplinarity, analyzing the social dynamics of interdisciplinary research (2022). Among others, they propose to study how funding is allocated, how distinct epistemic communities are formed, how internal power dynamics play out and how, because of varying theoretical presuppositions are negotiated (Silvast and Foulds 2022). Such sociologies of interdisciplinary projects have been carried out, among others by Barry and Born (2013) or by Paterson et al. (2020).

anthropologist Judith Farquhar's, who early on made the point that bodily knowing is processual and dynamic (Farquhar [1994] 2019).

More broadly, the dissertation is to be understood in the context of prior anthropologies that center the human body as "locus of social practice" rather than as the source of symbolism or means of expression (Csordas 1993: 135). I concur here with Downey's critique that anthropological studies of sporting, including dance, and musical traditions tend to address ideology and politics to the neglect of embodied expert practice and experience itself (Downey 2010). In contradistinction, I aim to shift the debate toward the physicalmental formation of social values and cultural norms, such as political inclination or ideology.

Theoretically, my arguments closely align with Carrie Noland's central claim in *Agency and Embodiment* (2009). Noland argues that "kinesthetic experience, produced by acts of embodied gesturing, places pressure on the conditioning a body receives, encouraging variations in performance that account for larger innovations in cultural practice that cannot otherwise be explained" (Noland 2009: 20). Following Noland, I show how bodilymental experience, and the learning, and inventing of bodymind techniques in specific cannot be sufficiently explained with declarative or determinist theories of bodily inscription dominant since Foucault.

Foundational and inspiring studies in this regard are Mauss' *techniques du corps* ([1934] 1973) and the way his ideas were picked up by scholars of Islam (Asad 1993, Mahmood 2012), as well as Pierre Bourdieu's theory of habitus ([1972] 2010).

Both Mauss and Bourdieu, while setting the theoretical base line, have been critiqued for not describing detailed enough how techniques are learned and habituated, consequently remaining in a framework where agentic culture inscribes itself into passive bodyminds. A second

generation of scholars, working with and extending their concepts has taken up this task and provides a fruitful field for debate for my own project.

Anthropologies of movement inculcation and movement cultures which manage to elicit the somatic dimension of culture through fine-grained ethnographic analysis are, among others, Loic Wacquant's study of a boxing gym on the Chicago South Side (2003), Ben Spatz' thinking about research and technique in theater and performance studies (2015), Greg Downey's extensive studies of enskillment in Capoeira (2005, 2008) or Kathryn Geurts' study of the sense of balance, which shows how culturally specific schemes of perception are bound up with normative orders (2002). Like Wacquant, Geurts draws on Bourdieu's theory of habitus, showing how cultural norms are produced (rather than solely reproduced) through perceptual and movement-based routines and habits (Geurts 2002: 107). Yet, crucially, Geurts argues that this is not an unconscious process, since such a view would presuppose a body as object. On the contrary, "the self is neither a substance or an entity but an indeterminate capacity to engage or become oriented in the world, and it is characterized by effort and reflexivity" (Geurts 2002: 108; compare with Csordas 1993). Thus, while there is no state of being free of habituated bodymind techniques, which one learns from birth on, one can reflexively and intentionally recognize and reorganize one's habituated bodymind techniques, and thus come to acquire new ones (Noë 2017: 233). The practice that allows for such a reorganization is dynamic and corporeal (Noë 2017).

Furthermore, I draw on anthropological and interdisciplinary debates around bodily knowledge and expertise (Csordas 1990 & 1993, Sklar 1994 & 2000, Downey 2008, Howes 2009, Marchand 2010). For example, Farnell and Varela explain how body movements are intelligent agentive actions rather than behavior (2008), Myers proposes that natural scientific

forms of knowing are advanced through and deeply grounded in body movement (2015) and Abrahamson and Sánchez-García suggest that conceptual development begins in movement learning (2016).

Closest to my own approach are the studies of Capoeira by Greg Downey (2008 and 2010) and Joe Dumit and Nita Little's work on contact improvisation (2020). Rather than presenting their empirical findings through the lens of a specific theorist like Bourdieu or Mauss, all three authors weave phenomenological experiential detail with conceptual development to understand the intrinsic intelligence of human bodyminds in movement. Based on their own decades of imbrication in the practice, Little and Dumit argue that contact improvisation dance is a form of attention research that has brought to the fore that attention is fundamentally tactile presence, located in the pinky toes as much as in the elbows. They write that attention can be trained to do extraordinary things, precisely because the ordinary is defined by the existing forms of attention we have learned (Little and Dumit 2020: 1). Therefore, the question for Little and Dumit is not what attention is but what it could be and what forms of attention we would like to have (Little and Dumit 2020: 13). Little and Dumit echo here questions crucial to my interlocutors who ask: How do we want to move? Little and Dumit write that the ways we talk and learn and move shape ourselves and our worlds (Little and Dumit 2020: 13). The practice of movement research dance, then, is a way to intentionally explore this process. Perceptual learning has been described, by pioneering psychologist of perception Eleanor Gibson as a process of reducing uncertainty in the face of too much stimulation (Gibson 1991: 183). Dance researchers ask how to tune into overstimulation, to get lost in, overwhelmed, and taken by stimulus, before finding a different, novel path to reduce uncertainty once again.

Downey studies how movements are learned and encultured and he argues that this is not a process of transmission of object-like knowledge but rather a process of scaffolding that he calls guided discovery (Downey 2008: 211). Learning a new movement technique, for example, is not imitating the movements of somebody else. Rather, it is the novice developing an ability to coordinate her bodymind with her environment (Downey 2008: 211).

As becomes apparent in the history of dance as research practice, briefly outlined for context in the following chapter, ideas and practices around observing and manipulating bodilymental techniques of perception, movement and action are phenomena that become particularly salient from the late 19th century onward as the body as *Körper* and as *Leib* is described as a means for self-cultivation, with multiple somatic and movement practices of ethical self-formation under development. It is at this time as well, that bodies come to be intentionally employed as tools as much as sensors for research (Quinten and Schroedter 2016).

To contextualize these acts of researching and forming bodilymental selves, I take cues from cultural and intellectual histories of human development, modernity and movement culture, such as Anson Rabinbach's *The Human Motor* (1992), Hillel Schwartz' *Kineasthetics* (1992), Josh Berson's *Computable Bodies* (2015) and Tim Ingold's *Culture on the Ground* (2004). *Culture on the Ground,* for example, is a biosocial history of how social theory's positing of human superiority as caused by upright posture elevated "the plane of social and cultural life over the ground of nature" (Ingold 2004, 315). Ingold shows elegantly how biological and social theories are propelled by as much as constrict bodily comportment, and how modernity brought about a range of technologies, for example, narrow footwear, that slowly separated cognition from locomotion, and human life as social from human life as somatically experienced with one's feet (compare also to Rabinbach 1992). Ingold furthermore analyzes how humans use their

bodies and develop techniques for bodily interaction, producing the social environments in which they dwell. In this regard, he recounts the body techniques and mechanical technologies that advanced a privilege of rational hands over mechanical feet which has led to the fact that studies of haptic perception focus almost exclusively on manual touch (Ingold 2004: 330).

Chapter Overview

An important question motivating this project from the beginning has been the dissonance between the dancer's self-labeling as researchers and the outside perception of them as artists. For the first chapter, I thus turn to a key episode in the history of dance and movement research to show the emergence of experimental dance as research practice in the internationally entangled reform movements of the early 20th century in Germany, Austria, and Switzerland. Drawing on primary and secondary sources, I show how dance was understood as a science proper which aimed to contribute to the alleviation of the ills of modernity. At the time, artists and scientists worked in close collaboration on the question of intentional movement as a life-shaping and life-changing practice.

I thus think that understanding today's dance research practice as a trend, mobilizing "dance as knowledge" to make it appear more valuable appears short sighted. Rather, I it makes more sense to understand dance research in the context in which it emerged: as a research practice aimed at observing, experimenting with and altering human perception and movement toward the end of changing a society in crisis. Today's research methods in experimental and contemporary dance directly grew out of the research practices developed in dance schools, laboratories, and artist colonies in the early 20th century (Quinten 2016: 38-39, Fleischle-Braun 2016: 49 and 51).

Throughout the years of fieldwork (2017-2022), I visited numerous dance research classes, workshops, festivals and trainings in Germany, Austria and the US and I was the research assistant in a dance research online lab and a dance research lab held in person in Berlin. I moved with and talked with many dancers who practiced dance toward the end of exploring and understanding something.[21] What that something was, depended, of course, on the respective dancers. For this dissertation, I center the work of two different collectives of dancers, organizing the chapters around the topics of their inquiries. There will thus be two topical chapters that follow two groups of dance researchers.

Chapter two will follow the dance researchers of the ISSC as they study attention as tactile, and chapter three will follow Axis Syllabus dance researchers as they study dynamic functional anatomy. While there are differences in the research practices of these two groups of dance researchers, what unites them is their medium, dance practice, and the goal described above: through changing human ways of perceiving and moving, we change not only people's bodily comportment but humans and societies more generally.[22]

A defining feature of the dance communities which we'll engage is that they are intentionally not institutionalized but function more like heterogenous informal networks with porous boundaries. Recognized institutions are few and instead there are many small and

[21] There are more dance research groups, styles and classes than would make sense to recite here. Research in dance practice is not a German phenomenon but one I have encountered in Austria, Switzerland, France, Belgium, Spain, Italy, the United States and Israel, to name a few. Beyond contact improvisation and the Axis Syllabus, there are entire dance traditions, for example the Israeli contemporary dance style Gaga, that conceive of themselves as research like (Katan 2016: 166).

[22] Since one might think first of the body when they hear movement, let me provide a caveat: the dissertation will discuss human bodies as always already enminded, meaning, as not separate from their minds, but as essential parts of resourceful, agentive, and intelligent humans. Classical Cartesian body mind dualism still dominates Western thought, both colloquial and academic. Attempts to overcome this dualism frequently reinforce the divide of mind and body. It's an old trick: By trying to solve a problem, you draw attention to it in the first place. Along the way, I will show how both my interlocutors and theorists I engage with try to and sometimes manage to overcome or at least circumvent body mind dualism. Yet, this dissertation is not here to solve the problem of body mind dualism. On the contrary, I try to steer clear of this problem as much as I can—so that it will not overshadow more subtle arguments.

changing venues, studios, workshops, and people who range from curious beginners to professional teachers of dance research. Training facilities, dance schools, and particular teachers are the epicenters around which research communities form. Dance researchers are some of the most nomadic folks I have encountered so far, constantly traveling for new training and teaching opportunities. I thus follow my interlocutors' journeys from Seattle to Vienna, from Berlin to Copenhagen, and from Lyon to Bristol to meet, move, explore, and experiment.[23]

I chose to study these two communities of dance researchers because I was intrigued by their innovative approaches to practice research and to engage with topics commonly tackled by academic scholars and scientists. For a while I thought of the dancers' research as the citizen science equivalent of 4E cognitive science, neurobiology, or motor control in neuroscience.

Citizen science projects often begin with a dissatisfaction on the end of the people affected, for example, if there is no sufficient scientific research on their condition at hand, if the research is not publicly available, or the research evidence is buried or tinkered with. In this respect, the dance researcher's work can be primarily understood as answering to a lack in available knowledge on techniques of perception and movement and on actionable strategies to change these techniques.

However, different from citizen scientists the dancers are not amateurs in their practice—they are employing professional skills and the research takes place in their professional environments. Yet, from both lay and scientific perspectives, the dance researchers will be perceived as amateurs concerning skilled perception and body movement in contradistinction to

[23] This dissertation is limited to outlining the US American and European origins and contemporary networks of dance as research practice. I am there has been and exists more dance as research world-wide, for example, in Russia (Portiannikova and Plokhova 2020), and I am interested in how ideas and practices travel around the world with dancers being one of the most mobile group of people I have ever met. However, dance happens in the present, in one moment, in a studio, and attending to this practice means committing to one location at a time. I could not have done more within the timeframe of a dissertation than what you find here but further research on the global to dance research's local is certainly needed.

psychologists, physicians, neuroscientists, and cognitive scientists. As described above, in the modern hierarchy of knowledge, dance research is no science. But such a perception would disqualify them qua their abilities as trained sensible instruments and experiencing subjects at the same time, with their own history and practice of engaging in research from a first-person perspective (think in parallel about how patients' first-person experiences can be disqualified in a professional medical setting). In fact, facing increasing digitalization, philosopher Richard Schusterman recognizes bodies (and I would add minds) as "our most primordial tool of tools, our most basic medium for interacting with our various environments, a necessity for all our perception, action, and even thought" (Shusterman 2008).

The question might thus be: How does this kind of inquiry based on first-person and communal phenomenal experience in movement coalesce with, enrich, or complicate scientific understandings of perception, movement, and anatomy—topics usually researched from a third-person perspective? To understand this better, chapters two and three will focus on the experimental practice of contemporary dancers who engage dance as a research modality. Following ethnographies of experimental environments in science studies, it's an almost conventional study of unconventional laboratories if you will.

In the fourth chapter, I'll address a blind spot that natural and social science research on technique and skill largely share, yet which the dance researchers address head on. Natural and social scientists both commonly adhere to the idea that techniques of perception and body movement are either natural (i.e. instinctual or automatic) or learned yet unconscious. Thus, they also align as on the assumption that techniques of perception and movement cannot be actively accessed and thus studied and changed in a comprehensive manner from a first-person perspective. Dance researchers, on the other hand, understand bodyminds as plastic and

transformative media for social change, shaped by adaptive techniques of perception and movement.

Based on what has emerged from my research, I thus propose a renovation of Marcel Mauss' foundational concept of body techniques, thinking of them as bodymind techniques which are engaged holistically by a human rather than by a mindless, automatic or unconscious body. Bodymind techniques are, I argue, conscious, intentional, relational, and creative. It is one thing to say what techniques are, another to ask how they are practiced. Drawing on an interdisciplinary array of scholars and scientists, I will therefore detail and theorize the process of learning and unlearning technique.

If US American contact improvisation in the 60s laid the ground for an understanding of the body from within (Novack 1993: 232), a motif that now begins to gain traction in today's neuroscientific and psychological studies on interoception, how do we make sense of the idea of adaptive, biosocial bodyminds that emerges from dance as research today? The final chapter, the conclusion, will unpack what it means and what is involved in a social theory of adaptive bodyminds. My interlocutors, ethnographic and historical, hold that because experience is patterned, it can be retrained toward new and potentially emancipatory ends. They hold that work on and with bodyminds changes not only perceptual and kinetic techniques and habits but humans as social creatures more broadly. In other words, they propose that subjectivity, intentionality, and world-making begin in patterned human experience and movement and can be changed here for the better.

When subjectivity emerges in techniques of perception and movement, it is in perception and movement that who one is and what one does may not only be adapted but may be manipulated. A popular worry has been that bodily training can thus be exploited toward specific

political or ethical ends. Think, for example, of the romantic vitalism of reform movements and German nationalist *Turnervereine,* which led to an aestheticized obsession with sporting bodies and eventually provided fertile ground for national socialism's race ideology, its pseudoscience and eugenics. Situating my interlocutors' projects of reforming self and society in social histories and theories of practical, corporeal ethics, I ask: Are practices of experiential and corporeal reform inherently good, as my interlocutors tend to claim, or does the idea that one can "make new people" through somatic research and reform implicitly exclude or even discriminate those that can't participate or resist reformation? Finally, what kind of implicit norms are built into the somatic reform protocols that the dance researchers propose?

Chapter 1: Dance Research's Interdisciplinary History

If you scroll through dance studio or dance festival workshop and class offerings on the internet, it may look as if contemporary dance today is primarily research focused. Indeed, it can appear as if there is a paradigm shift happening in experimental and contemporary dance from performance to research. I hear dancers excitedly proclaiming their interest in inquiry and experimentation rather than performance, happy to have found spaces to explore rather than to train for the stage.

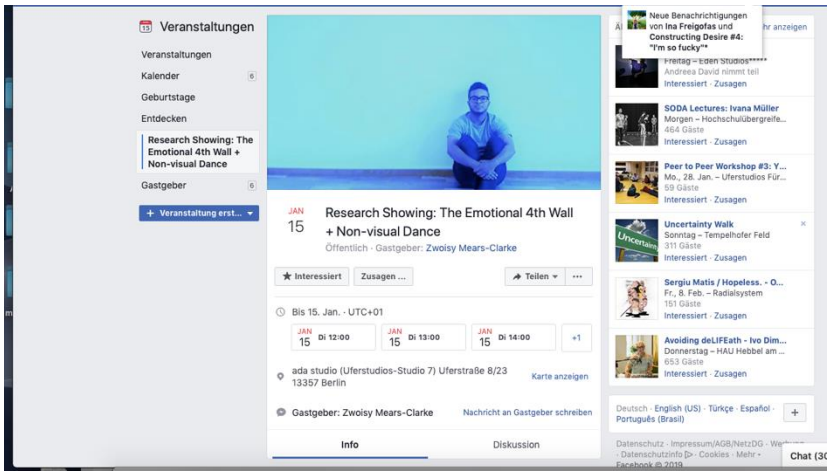

Figure 2: Screenshot advertising dance research showing. On the right events pane, more "research-style" dance events are offered. Copyright: Anne-Sophie Reichert.

Few of these dancers know that research has been a foundational component of dance for approximately 130 years. What we call contemporary dance today came into being as an experimental practice. Throughout the following pages, I will highlight decisive moments in the history of dance to contextualize today's dance research. It is still difficult for me to understand why there is what I would almost call an obsession with the scientific in contemporary dance today. Laboratories, experiments, research projects, research showings abound wherever one looks and yet we may only be able to understand in retrospect what this trend is answering to

within the dance scene and for society more generally. Looking back and understanding the function of dance research in the early 20th century, the period in which dance became experimental, may provide some indication. What did dance as research contribute to early 20th century social life and can this help us to understand what dance's task as research practice in society is today?

Conceptually, it is important for this endeavor to think of history not as bound by disciplines. If we separate the history of the natural sciences and the history of dance, we will have trouble making sense of what is happening in the early 20th century. A problem-focused rather than a disciplined history allows us to see how natural scientific and artistic dance research develop mutually. In tracking a problem rather than a discipline, I follow Hans-Jörg Rheinberger's invitation to "take into view the arts and sciences from a unified historical perspective", disclosing the peculiar proximities of the two in early 20th century Germany (Rheinberger 2012).[1] What I hope to show is that if primary and secondary sources are scrutinized from an angle that takes the arts and sciences into view from an integrated perspective, the explicit entanglement of artistic, social and scientific practices and theories becomes apparent. What it meant to conduct an experiment was not solely defined in the scientific laboratory. On the contrary, experiments were carried out in private and in the public, in the factory and on the theater stage. Therefore, experimental language and practice cross-fertilized and developed between artistic, scientific, and socio-political realms.

[1] Rheinberger defines as primary to the common ground of the arts and sciences their innovative character: ‚[…] die Einlassung auf das Unvorwegnehmbare […], ohne dabei – und das ist mir wichtig zu betonen - das Recht auf Differenz, vielleicht sogar auf nicht reduzierbare Differenz zu verweigern' [[…]the openness to the unknown […], without—and that is important for me to emphasize—denying the right to difference, maybe even irreducible difference.'] (Rheinberger 2012)

This history begins in the German speaking worlds of Germany, Austria, and Switzerland. The *Ausdruckstanz* movement of the 1910s, 20s and 30s, which is distinct to the German-speaking world, provided the context for a "prototype of scientific-practical research about bodies, corporeality and movement in space and time" (Adshead-Lansdale 2001: 28). Yet, the practice of dance research was entangled with a variety of global influences from the beginning and branches out internationally with the onset of the two World wars and the emigration of dance research protagonists. The founder of somatic research practice Feldenkrais, Moshe Feldenkrais, was one of the first Europeans to hold a black belt in Judo and his study of Judo evidently influenced his own thinking (Eddy 2002: 6). Rudolf von Laban was a practicing Rosacrucian, a Western European spiritual and mystical movement influenced heavily by Arabic, Persian and Indian traditions (Eddy 2002: 6). And in Moscow, there was the State Academy of Artistic Sciences GAChN, headed by Vassily Kandinsky. The academy included a dedicated choreological laboratory, which operated from 1921 to 1930 (Misler 1996, Sirotkina 2021).

To show the global circulation of practices and knowledges that inform dance research would be a dissertation in its own and is a project that is just beginning to take shape. The group *Moving Margins*, for example, hosts workshops and symposia to diversify the history of dance, slowly building an alter-archive to extend and question the Euro-American canon.[2] Another route of inquiry could follow arguments that prompt us to reckon with the colonial and imperial entanglements of utopian communities such Hellerau and Monte Verita, where dance research took place (Köbschall 2019). Is dance research's reformist and utopian historical context conditional upon dispossession (Stanger 2021)? More primary and secondary source research

[2] https://touchingmargins.com/#:~:text=Moving%20Margins%20is%20an%20alter,a%20variety%20of%20dance%20histories. (last accessed 04/11/2023).

that explores dance archives and traditions beyond Western Europe and the US is required before we can write a comprehensive history of dance research that decenters the West. Overall, the history of modern dance, expressive dance and dance research is more varied and detailed as I can possibly portray in this chapter. In lieu of completeness, I have chosen a few historical moments that are particularly helpful in explaining how dance came to be understood as research.

How Dance became experimental

Historically, the early 20th century was a phase of large economic, political, and social transformations, onset by the transition to industrial capitalism in Germany. These transformations were most aptly felt in the metropoles, as the writings of contemporary witnesses such as Georg Simmel's *The Metropolis and Modern Life* vividly illustrate. Simmel described the pressure on the intellect, overwhelmed by the acceleration and over-stimulation that accompanied modern life and the tension between highly individualized subjectivity and metropolitan impersonality (Simmel 1902). But tensions were not only cultural in nature. With the rapid expansion of industry in the metropoles, migration into the cities rose exponentially, which in turn led to precarious living conditions for lower-class workers. The result of this was an onslaught of epidemics, countered by the Wilhelmine state with *Hygiene* measures, which introduced sanitation, health education and health standards.

The precarity and poverty that defined modernity in the metropolis in the early 20th century ultimately led to the *Lebensreform* (life reform) movement in Wilhelmine Germany, a phase of unconventional and experimental practices in seeking answers to the social question. At the time, the catchphrase *die soziale Frage* (the social question) referred to a public debate of the

social and economic problems caused by the transition from agrarian society to urban industrialized society and to possible solutions to these problems.

Philosophically, both French and German phenomenology, vitalism and language skepticism were on the rise and informed the intellectual *Zeitgeist* of the late 19th and early 20th century in Germany, as well as in Austria and Switzerland. In face of rationalism, disembodiment, and the perceived disenchantment of modernity, phenomenology intended to re-center the lived body as a valuable source for human knowledge and agency. Phenomenologists like Maurice Merleau-Ponty, Edmund Husserl and Alfred Schütz were widely read and promoted. In opposition to Kant's rational idealism and the a priori categories, the sociologist and philosopher Max Scheler pioneered philosophical anthropology, a theory of a naturalist vitalism grounded in sensory experience. At the heart of phenomenology at the time was the idea that carnal being fundamentally enables humans to perceive, disclose and thus make sense of one's environment. Phenomenology operated in a naturalist fashion, differentiating itself from spiritual and mystical ideologies that had similar goals of putting human bodily and sensory experience at center stage and which began to flourish just a few years later.[3]

Against this backdrop, a new understanding of human physiology in which the body was directed from the inside rather than from an external authority slowly emerged. Coupled with the scientific and intellectual trust in first-person phenomenal experience, power was not understood as enforced externally top-down but as enacted individually. The individual body became a locus of exploration, care, and refinement of the self. In the context of German nudist culture, for

[3] One example of a spiritual doctrine that is practiced bodily is Johannes Itten's adherence to the neo-Zoroastrian Mazdaznan cult at the Bauhaus. Itten cultivated a group of pious disciples and propagated strict vegetarianism, specific gymnastics and breathing exercises as the key to inner understanding and artistic inspiration.

example, gymnastics was conceived of as a self-induced and self-regulated practice that cultivates embodied individual personality and free will (Möhring 2004: 77-87).

This kind of forming of the self was not self-serving. Rather, individual cultivation of body and mind was thought of as a necessary condition toward a greater social good (Möhring 2004: 86). This belief was not one of gymnasts alone. The idea that successful social change begins with change at the level of the embodied individual was a larger motif of early 20th century *Lebensreform* (life reform). Gymnasts, dancers, artists, craftspeople, natural scientists, physicians and social reformers believed that social change begins with individual bodily reform. That work on and through the bodily sensuous self would not only transform individuals, but aid humanity is a theme described widely by historians of the early 20th century, as the "physical imperative of modernity" (Segel 1988), a "new kinaesthetic of the 20th century" (Schwartz 1992) or "kineasthetic knowing" (Alexander 2017).

Conventionally, research or experimentation are understood as genre-defining practices of the natural sciences and thus is not easy to understand why experimental dancers of the early 20th century relied on the language and practice of scientific experimentalism. One problem is that the historical epistemology of the experiment and the laboratory has drawn almost exclusively on sources from the natural sciences so far, eschewing the prevalence of experimentalism in non-scientific realms (Dehue 2004: 86-89). And, the history of the experiment and the laboratory is relatively young: its historical origins have only been under investigation in the history and philosophy of science since the 1980s (McLaughlin 1993: 205) and a general, interdisciplinary history of the laboratory has not yet been written (Schmidgen 2011). So how did dancers become researchers?

Statisticians and social theorists used the terms "social experiments" or "experimental society" in the 19th century already. Yet, the terms referenced natural catastrophes (Dehue 2004: 86-89). August Comte, George Lewis, John Stuart Mill and others neglected the possibility of human experiments because they could not be controllable and might have negative consequences for the people involved (Dehue 2004, 86-89). With the increasing industrialization at the end of the 19th century and the onset of the *Lebensreform* movement, sociopolitical measures which aimed at curbing rising poverty were deliberately named social experiments. The philosopher of science Hans-Jörg Rheinberger describes this phase as the *Entgrenzung des Labors* (dissolution of laboratory boundaries): research in the life sciences aimed to solve the social question and thus took its experiments out of the laboratory and into society to provide immediate relief (Rheinberger/Hagner 1993, Introduction).

At least since 1848, natural scientists had advocated for progressive politics informed by scientific innovation in seeking answers to the social, economic, and cultural tensions accompanying the transition to industrial capitalism (Repp 2000: 689). Influenced by these practical developments in the life sciences, many social activists, critics, and scholars turned to *Wissenschaft* for solutions to the social question (Repp 2000: 689-690). The historian Anne Kwaschik, for example, describes how social theorists and reformers fashioned their social theories and experiments with housing cooperatives in the 19th century on natural scientific rational principles already. These reformers aimed to change society by employing rigorous scientific principles to the organization of society and daily life (Kwaschik 2017: 193).

In 1890, the *Berlin Social Scientific Student Union* was founded [4] At its meetings, Franz Oppenheimer, Friedrich Naumann and Max Weber debated the social question in increasingly

[4] The Berlin Social Scientific Student Union would come to found the German Society for Sociology a decade later.

scientific terms yet cautioned against already existent pseudoscientific claims of eugenic science. According to Repp (Repp 2000: 693),

> what drove this diverse group of reformers to adopt the language of science, and of biology in particular, was a humanist compassion for the victims of industrialization coupled with the urge to place appeals to social conscience on a more modern footing by moving away from the traditional pleas for Christian charity that were losing persuasive force in an increasingly secular, materialistic world.

Broadly speaking, scientific findings appeared as plausible and actionable answers to social and political problems of the late 19th and early 20th century. Following Repp, and on the basis of previous archival research on early experimental and expressive dance, it seems likely that the language of the experiment and the laboratory made its way from the scientifically spirited social reformists and the humanistically inclined life scientists in the metropolis to some of the sites in which dance research was pioneered: The rhythmics school of Émile Jaques-Dalcroze in Germany's first garden city Hellerau, planned and frequented by exactly those scientifically inclined humanists that met in the clubs of Berlin, and Rudolf von Laban's choreographic institutes in Würzburg, Munich, Berlin and at Monte Verita.

In these early dance as research endeavors, the scientism of social politics, in which scientific practices would solve social problems, was coupled with the phenomenologically inspired idea that social change begins in individual bodily change. A diverse array of intellectuals, politicians, scientists, and artists supported Jaques-Dalcroze and Laban, arguing that practices that combined the aesthetic and bodily with the experimental and empiricist held the ability to solve the social question and reform humanity. Thus, the dance studios of Dalcroze and Laban were consciously described as scientific endeavors. For example, Wolf Dohrn, the manager of the Festspielhaus Hellerau, described Dalcroze's rhythmics school as a

"Versuchsfeld" (experimental field).[5] Novelist and poet Hugo von Hoffmansthal approved of Dalcroze's work as a powerful technique to retain mechanization[6] and politician Theodor Heuss, who would become federal president of Germany in 1949, wrote: "By giving people the sense for the good rhythm of bodily movement back, a fundamental contribution to the solution of the social question should have been reached."[7]

At Dalcroze's rhythmics school in Hellerau, the real experiment was to see whether dance training and research would shape individuals and consequently overall humanity for the better, thus easing the perceived social tensions of modernity. The sentiment prevailed that reason and intellect alone, as expressed in the political, economic, and hygienic reform measures, were not equipped to solve the modern crisis.

Bauhaus teachers László Moholy-Nagy and Sigfrid Giedion championed the experiment to bring out the unconscious parallelism between scientific and artistic practice, bridging the gap between the two. According to the two artists and *Bauhaus* teachers, only a collaborative laboratory of art and science could master the ultimate schism of modernity: that between thinking and feeling (Schmidgen 2016: 8). It is in this context that experimental dance and rhythmics became veritable forms of social experiments, supported by social and natural

[5] Wolf Dohrn, ‚Unsere Zeit ist reich an Ideen und Versuchen; aber relativ arm an durchgeführten und durchführbaren Ideen. [...] Hellerau ist ein Versuchsfeld. [...] Was an anderer Stelle gekünstelt wäre wird hier (Hellerau) ein natürliches Ereignis.' [Our time is ripe with ideas and experiments but comparatively poor in executed and executable ideas. Hellerau is an experimental field. What would appear artificial in other locations becomes a natural event in Hellerau], Die Bildungsanstalt für Musik und Rhythmus Jaques-Dalcroze in Dresden-Hellerau. Ein Bericht mit 8 Abbildungen,' Jena: Eugen Diederichs, 1910, pp. 9-10. Music Department, Staatsbibliothek Berlin.

[6] "The efforts of the Dalcroze school seem to be directed toward the concentration of the mental faculties to me, leading to a necessary higher realm, positioned against the mechanizing Zeitgeist and therefore worth promoting in every sense." English translation mine. The German original reads: "Die Bestrebungen der Schule Dalcroze scheinen mir auf Zusammenfassung der Seelenkräfte gerichtet, auf ein bedingt Höheres hinleitend, dem mechanisierenden Geist der Zeit entgegengestellt und somit in jedem Sinn der Förderung wert." Gutachten über die Schulfeste der Bildungsanstalt Jaques Dalcroze. File Sächsisches Staatsministerium, Bildungsanstalt Jaques-Dalcroze, Folder 1, Haupstaatsarchiv Dresden.

[7] English translation mine. The German original reads: "Indem den Menschen der Sinn für den guten Rhythmus der körperlichen Bewegung zurückgewonnen würde, sollte auch ein elementarer Beitrag zur Lösung der sozialen Spannung erreicht sein" (T. Heuss, cited from Heinold and Großer 2007: 32).

scientists and social reformers. Dance could be conceptualized as an experimental practice geared toward solving the social question, one body at a time.

That scientists, although certainly not all of them, endorsed dance as a form of experiment that could lead the way to improve society may still seem farfetched. Yet as natural and social scientists took their experiments out of controlled environments to provide immediate relief, they were at the same time preoccupied with what historian of science Anne Harrington has called a "re-enchanting of science" (Harrington 1999). There was the felt, urgent need for a kind of holistic organicism in the face of exclusively rational and mechanist understandings of body and mind that could not explain sufficiently how individual organisms develop and adapt. As much as artists and dancers strove to become experimental and scientific, scientists and scholars yearned for holistic and not solely mechanistic answers to understand human development. Dance research's proposed plasticity and adaptability of the human body and mind proved precisely that humans were organic rather than machinic. Contrary to Ruskin's rural nostalgia and other coeval attempts to master modernity by returning to or reviving imaginations of the past, organicism, neo-romanticism, phenomenology and ideas of individual self-formation and social reform went hand in hand, choosing innovation over restoration in future-oriented experimentalism.

Early Movement Research

Émile Jaques-Dalcroze and Rudolf von Laban did not call their dance and movement practices research in a metaphorical sense. They were directly concerned with investigating patterns of body movement, sense perception—especially the kinesthetic sense—and emotion.

Both published popular science books and scientific articles on body movement education and the health benefits of regular movement training. Their work was collaborated on and read by natural scientists. Jaques-Dalcroze, for example, collaborated for multiple years with Eduard Claparède, professor for physiological psychology at the University of Geneva, who was interested in rhythmics as a kind of embodied therapy.

Laban and Dalcroze were driven by empiricist ideals: only systematic practical investigation would yield ample understanding of the human body in movement and could consequently help one to understand the effects of bodily exploration and training on individual development and on German society as a whole. Notwithstanding this focus on body movement as a science proper, Jaques-Dalcroze and Laban understood their movement practices as means for artistic creation and expression and as pedagogical tools for somatic education, too (Brandstetter 2013: 524). While change was to be affected on individuals, the research and teaching of rhythmics and expressive or experimental dance was a collective endeavor, between teachers and students, dancers and scientists (Fleischle-Braun 2016: 51). Dance concepts and techniques were developed in collective work processes, based on the learnings of the involved members of the research group (Fleischle-Braun 2016: 52).

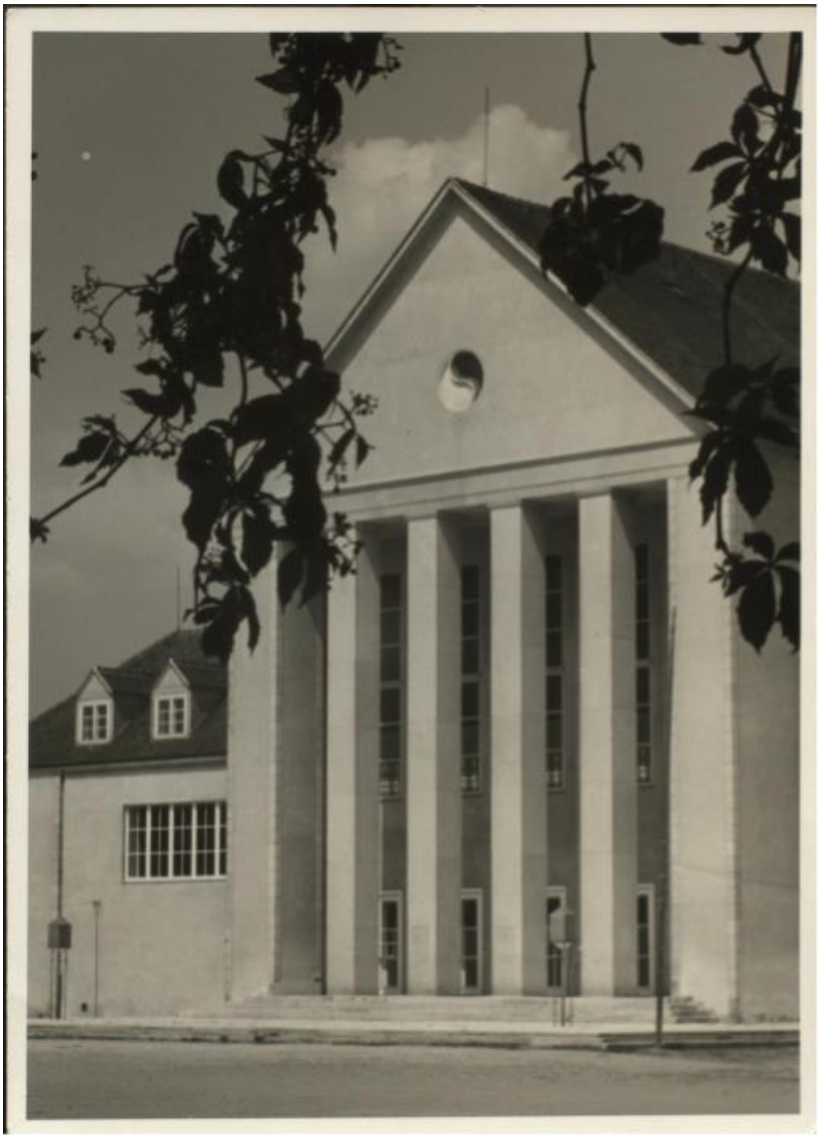

Figure 3: Entrance Portal to the Bildungsanstalt Jaques-Dalcroze. The structure was designed by Heinrich von Tessenow, the Yin Yang Emblem was designed by Alexander von Salzmann. Source: Fotoarchiv Deutsche Werkstätten Hellerau, Hauptstaatsarchiv Dresden.

The Bildungsanstalt Jaques-Dalcroze was primarily envisioned as a school for vocational training for laymen, dancers, and dance teachers, with classes in Rhythmik, solfège and improvisation. Dalcroze and the schools' managing director Wolf Dohrn offered not only a privately funded institution for dance education, but they also pioneered an understanding of experimental dance and movement research as a form of scientific exploration. Pupils would

move parts of their body according to a rhythm provided; different body parts could execute different rhythms. Dalcroze hoped that these exercises would establish a relation between cognitive and embodied understandings of music, consequently making his pupils better musicians. Dalcroze's Rhythmik began as an exploratory investigation to the end of enhancing musical ability but would be built into a system for movement education that could be taught and trained in. While Dalcroze showed staged dances at the Festspielhaus Hellerau, the public performance of Rhythmik was primarily understood as a demonstration of the latest research findings rather than as a show.8 Dalcroze consciously fashioned himself and his students as researchers who were exploring, developing, and testing a new body movement system.

[8] Dalcroze cited in: Michael Faßhauer, *Persönlichkeiten in der Geschichte Helleraus* [1988]., File Personennachlass Klaus-Peter Arnold, Hauptstaatsarchiv Dresden.

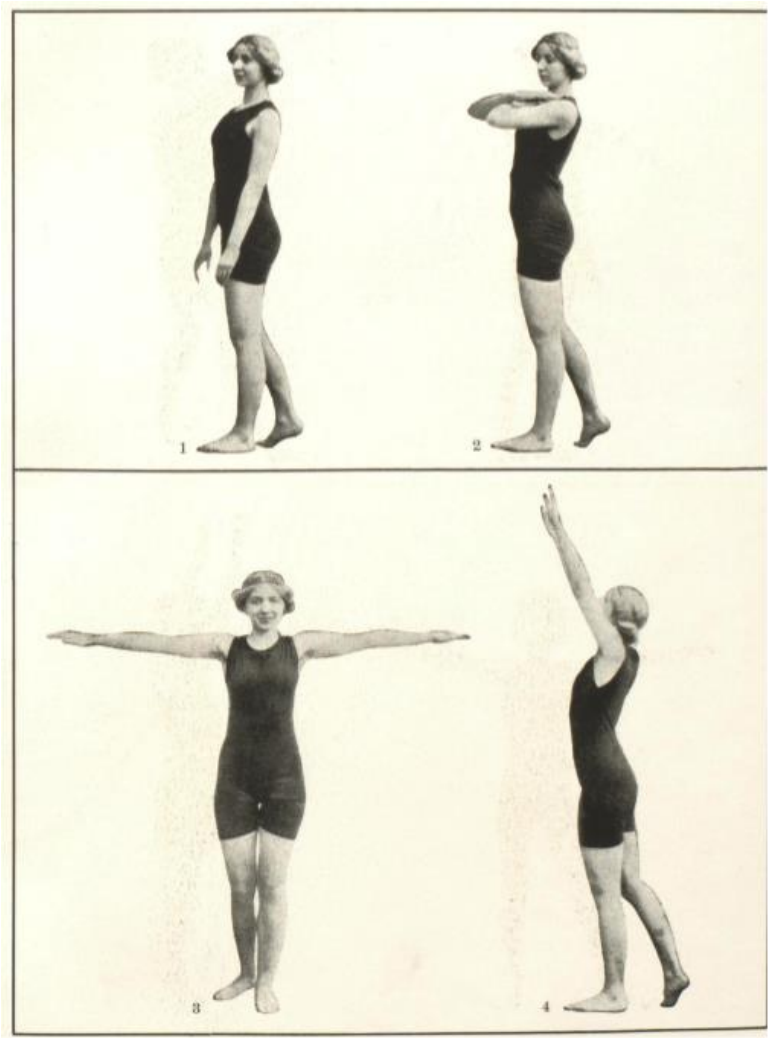

Figure 4: Embodiment of four-four-time. Source: *Der Rhythmus ein Jahrbuch, 31* [1911], File Sächsisches Staatsministerium, Bildungsanstalt Jaques-Dalcroze, Folder 1, Haupstaatsarchiv Dresden.

Ultimately, Dalcroze hoped to contribute his work to the solution of the social question. Rhythmik was an investigation of the human body with the individual body as the primary research instrument.[9] Only a person schooled in moving and using her body, equipped with trained perception would be able restore "man to knowledge of himself" (Dalcroze 1920: iii); a form of knowing that valued one's bodily intelligence and that had been eradicated by modern, mind-centered understandings of human nature. A return to an embodied understanding of

[9] Émile Jaques Dalcroze, ‚Was die Rhythmische Gymnastik ihnen gibt und was sie von ihnen fordert,' [What rhythmics provides and what it asks of you], Der Rhythmus. Ein Jahrbuch 1911, p. 41. File Sächsisches Staatsministerium, Folder 1, p. 13, Hauptstaatsarchiv Dresden.

human being and intelligence through regular movement training, so Dalcroze, would alleviate the ills of mechanization and rationalization and consequently improve humanity.[10] The emphasis on somatic and sensory rather than on intellectual development mirrors the phenomenological and vitalist Zeitgeist of the time. Intellectuals, social reformers and even scientists believed that reason and intellect alone were not enough to solve the crisis of modernity in German society (Harrington 1999).[11]

About the same time as Jaques-Dalcroze left Germany for good due to the onset of the first World War (1914), Rudolf von Laban entered the stage of the German dance and movement scene. Laban, credited as the founder of Ausdruckstanz (Segel 1998: 86), initially operated a studio for movement research out of his home in Munich but soon after, the Schule für Lebenskunst at Monte Verità, where he offered summer courses between 1913 and 1919 became the central location for the development of his movement and notation technique. Laban's comprehensive notation system allowed for a detailed structural analysis of movement scores for the first time and remains the most precise dance notation available until today (Adshead-Lansdale 2001: 29). With rising fame and the end of World War One, Laban opened a Schule für Bewegungskunst in Zürich. In 1923, his first official Laban school in Hamburg followed. Laban taught expressionist dance, pantomime, improvisation and experimentation with body and voice. With Laban's endorsement, his former students began to open dance institutes and soon there was a whole network of Laban schools operating throughout Western Europe (Segel 1998: 86).12 In 1927, Laban went on to found the Choreographisches Institut in Würzburg which was

[10] Emile Jaques Dalcroze. „Was die Rhythmische Gymnastik ihnen gibt und was sie von ihnen fordert." In: *Der Rhythmus. Ein Jahrbuch* [1911], 41. File Sächsisches Staatsministerium, Folder 1. Hauptstaatsarchiv Dresden.
[11] Wolf Dohrn, Rede zur Grundsteinlegung der Bildungsanstalt Jaques-Dalcroze,' Der Rhythmus Jahrbuch, 1911, p. 13. File Sächsisches Staatsministerium, Bildungsanstalt Jaques-Dalcroze, Folder 1, Haupstaatsarchiv Dresden.
[12] There were Laban schools in Basel, Stuttgart, Hamburg, Prag, Budapest, Zagreb, Rome, Vienna and Paris.

relocated to Berlin in 1927 and merged into the newly constituted Folkwangschule in Essen in 1929 under the direction of Kurt Jooss, a former student of Laban's (Segel 1998: 86).

Historians of dance debate whether Rudolf von Laban's embrace of Nazism was strategic, naïve, and whether it impinged on his dance research and theory (Keilson 2019: 20). However, it is certain that from at least 1933 on, Laban actively collaborated with the Nazi regime, relying not only scientific theories but pseudo-scientific fields such as race theory and eugenics that were subtly woven into his political mission and program under the guise of liberalism, mysticism, and nationalism (Keilson 2019). With the approval of the head of the *Reichministerium für Volksaufklärung und Propaganda*, Joseph Goebbels, Laban established the *Deutsche Tanzbühne* in Berlin in 1934. Here, we find a first conscious effort for the institutionalization of a theoretical study of dance. Laban commissioned Albrecht Knust, a former student of his, to direct a Tanzschreibstube (Peter 2009: 476). Knust was tasked with improving Laban's notation system Kinetographie and with protocolling a range of movement scores and dance pieces in Kinetographie.[13] The Tanzschreibstube ran from summer 1935 until autumn 1936; its kinetograms form the foundation for what would later become the *Deutsches Tanzarchiv* (Peter 2009: 476).

Under the Nazi regime, Laban became the head of a the first central and state-funded institution for vocational and theoretical dance education, the *Deutsche Meister-Stätten für Tanz*. Laban hired the Berlin dance journalist and writer Fritz Böhme as an instructor for dance history and Knust as an instructor for dance theory. Fritz Böhme had already attempted to form a working group for dance research and study in the late 1920s (Peter 2009: 476), had published several books on dance and worked on a card index for ballet. (Peter 2009: 476). With Knust's

[13] Kinetographie was the first name for Laban's movement notation. Today, it is more commonly known as Labanotation or Laban-Movement-Analysis.

appointment as head of archive, the collection of his kinetographs from the *Tanzschreibstube* was merged into the archive of the *Meister-Stätten* (Peter 2009: 476). Laban fled Nazi Germany in 1937 and settled in England where he worked until his death. Only a small amount of the materials collected by Knust and others in the archive survived a British air raid on the *Meister-Stätt*en in 1943 (Peter 2009: 477) and with a lack of funding due to the federalization after World War Two, the archival materials were stewarded by private individuals. Only in 1985, the private collections were merged again into a public collection, the *Deutsches Tanzarchiv* in Cologne (Peter 2009: 479).

After Dalcroze had to leave Germany, the school in Hellerau continued to be an educational site with a strong focus on experimental and laboratory work with teachers and students such as Elsa Gindler, Dora Menzler, and Marianne Pontan themselves inspired by gymnast and movement teachers such as Bess Mensendieck or Ilse Middendorf.

Laban's and Jaques-Dalcroze's efforts to institutionalize Ausdruckstanz and dance research were pushed further by Oskar Schlemmer at the Bauhaus in Dessau. Schlemmer directed the independent department *Bauhausbühne*. The 'Neue Sachlichkeit' of the Weimar Republic influenced dance as it became more technical, formalist, and scientific: movement functions and choreographic principles were developed, tested, and trained (Müller/Stöckemann 1993: 38). Schlemmer was interested in the function of the moving body in space. Other than the work of protagonists of *Ausdruckstanz*, that was influenced by mythology, psychoanalysis, anthroposophy, and the traditions of "exotic" cultures, Schlemmer defied psychological principles in favor of regularities and laws of movement in space (Müller/Stöckemann 1993:

38).[14] Schlemmer devised stage designs and choreographies for a type of mechanic, mathematical dance (Schlemmer 1926). With his *raumplastische Kostüme*, he aimed for a de-individuation of the human body in favor of an emphasis on universally shared body parts and movements (Müller/Stöckemann 1993: 38). Schlemmer was responsible for teaching stage theory and drawing but he also developed a new subject for dance theory himself. His seminar "Der Mensch", first taught in 1928 at the Bauhaus university in Dessau combined formalist artistic principles with biological theories and philosophical perspectives.

The institutions of Jaques-Dalcroze, Laban and Schlemmer provide the first efforts for empirical and theoretical investigation through and into dance. To be a performing dancer or choreographer was not mutually exclusive from being a dance researcher for Jaques-Dalcroze, Laban or Schlemmer. All three were already established at universities as in the case of Schlemmer's *Versuchsbühne*, were predecessors of universities, as in the case of Laban's *Choreographisches Instit*ut that was transformed into the *Folkwangschule* and the *Meister-Stätten für Tanz,* or formed independent educational schools that are still in use today, as in the case of Dalcroze's *Rhythmik*. The training concepts and schools for experimental dance in the early 20th century were oriented towards an interdisciplinary curriculum which consisted of the following three aspects: 1) practice based movement and dance research, commonly practiced in group ensembles; 2) the discussion of natural scientific knowledge, music theory and psychology of expression and 3) creative, interdisciplinary forms of work (Fleischle Braun 2016: 52). These dance laboratories all engaged in interdisciplinary dialogue of artistic, pedagogical and philosophical approaches (Fleischle-Braun 2016: 52).

[14] Historian of dance Arabella Stanger describes the scientific embrace of Laban and Schlemmer not as value neutral but as reactionary, white and exclusive, arguing that ideas of utopian community and self-reform "depend on and conceal material conditions of imperial, colonial, and racial subjection" (Stanger 2021: 3).

Dalcroze, Laban and Schlemmer did not operate in a vacuum but had many aides, trainees, and collaborators. Foremost, they trained the first generations of predominantly female experimental and expressive dancers, dance teachers, dance researchers and somatics teachers such as Nina Gorter, Rosalia Chladek, Dore Hoyer, Kurt Jooss, Irmgard Bartenieff, Mary Wigman, Marie Adama von Scheltema, Suzanne Perrottet and Katja Wulff (for a historical overview of the German dance scene in the first half of the 20th century see Manning and Ruprecht 2012). Some of these actively collaborated with the German Nazi regime, such as Mary Wigman (Manning 1993), others fled Nazi Germany and founded dance and movement education programs in Switzerland, Italy, the UK, or the United States.

Irmgard Bartenieff for example, a student of Rudolf von Laban, emigrated to New York before the outbreak of World War Two, and further developed what she had learned under Laban into the first American Laban-based movement program, into therapeutic programs for polio patients and disabled and into her own movement research program, Bartenieff Fundamentals. Together with ethnomusicologist Alan Lomax and dancer and dance researcher Forrestine Paulay, she initiated research into cross-cultural methods of movement fundamentals under the Choreometric project (Laemmli 2018).

The German-Jewish dance, movement and breathwork teacher Carola Spitz, trained in the Berlin gymnastics school of Elsa Gindler emigrated to New York in the 1940s and opened a breath and body work studio in Manhattan (Ribbat 2020). Charlotte Selver, who had collaborated with Carola Spitz in Berlin brought sensory awareness training to California.

As in the case of Bartenieff, further kinds of somatic programs took shape, among others, the Alexander technique, the Feldenkrais method, Mabel Elsworth Todd's ideokinesis and her movement research laboratory at Columbia University and later the work of dance and somatic

teachers and researchers such as Anna Halprin and Bonnie Bainbridge Cohen (see Johnson 1995 and Eddy 2003 for outlines of the history of somatics as a field).

These practices developed sometimes in parallel and in many cases directly influenced by the research of Dalcroze, Laban, Schlemmer and their students. Gerda Alexander, the founder of Eutony, for example, was trained by Dalcroze. Programs like Feldenkrais and the Alexander technique, similarly to Dalcroze's and Laban's efforts, began as research projects to address pressing physical ills and strove to create ways to engage mind and body together in intentional first-person somatic experience (Spatz 2015: 97, 101).

These US-American successors of the early dance researchers directly influenced the dance communities around the Judson Church and the San Francisco Dancer's Workshop that would bring about contact improvisation and thus influence Nita's style of inquiry (more on this in the next chapter).

The Tänzerkongresse

Finally, another institution that helped to constitute and publicly acknowledge "science" through and about dance were the German Tänzerkongresse. The first congress in Madgeburg was organized in parallel to a national theater exhibition in 1927 (Stöckemann 1993: 64). Its primary goal was to organize the dance community but next to performances at night and working group meetings in the afternoon, the mornings were filled with an extensive lecture program (Stöckemann 1993: 57, 59). Lectures were given by dance critics, dance writers, dance historians, choreographers, and dancers (Stöckemann 1993: 59). Dance historian Fritz Böhme, for example, lectured on the dance of modernity, pointing out the collective endeavor of dance in a time of alienation (Stöckemann 1993: 64). And the Viennese architect Adolf Loos, speaking

about the physiology of dance, underscored the positive aspects of dance figures of modern dance which he deemed much more natural than the artificial movements in classical dance (Stöckemann 1993: 64).

The Tänzerkongresse grew significantly over the years, from about 300 participants in 1927 to over 1400 participants in 1930 and were predominantly occupied with describing, classifying and defining the heterogenous field of dance in the endeavor to constitute Tanz as Wissenschaft and as community. In that vein, the participants of the second Tänzerkongress signed a resolution that demanded a public and state-funded wissenschaftlich-soziologische Forschungsstätte für Bewegung (Stöckemann 1993: 90).

At the last congress for the time being, in Munich in 1930, nationalist, protofascist and racist ideologies were already prevalent. Prior, lay dance had been discussed with respect to its artistic process but now there was a trend toward conceptualizing it as an element of national education and culture (Stöckemann 1993: 93). Plans for a *Tanz-Hochschule* were finally concretized. The school was supposed to combine the vocational training of dancers and dance pedagogues with university level scholarship and education in Bewegungswissenschaft (movement research) (Müller/Stöckemann 1993: 103). Finally, the *Tanz-Hochschule* should have an archive and a library. With the Nazi's advent to power in 1933, this plan for a *Tanz-Hochschule* was never fully realized. However, given Laban's central role at the Tänzerkongresse and in the dance milieu, it seems likely that the *Deutsche Meister-Stätten für Tanz* that were endorsed by Goebbels and headed by Laban drew much inspiration from this proposal.

The German Tanzkongress was revived in 2006 and has since taken place five times. These modern iterations of the Tanzkongress are less interested in streamlining and classifying a

heterogenous field of dance rather than in propounding dance as research practice. They consist of various kinds of laboratories, workshops, seminars, and communal events such as shared dinners and discussion rounds. Each of the last five congresses was held under a special motto. Similarly to the conferences in the 1920s, however, they strive to provide a forum for the dance community to come together, meet and exchange.

Dienstag, 11 Juni 2019 KULTUR/BÜHNE DRESDEN Dresdner Neueste Nachrichten 13

Tanzkongress in Dresden: Mehr als 500 Künstler aus gut 30 Ländern sind der Einladung auf eine unbekannte Reise gefolgt

Im Labor

Von Rico Stehfest

Die Vorarbeit für den diesjährigen Tanzkongress hatte bereits weit im Vorfeld begonnen, unter anderem mit diversen Salons, Workshops, Think Tanks und öffentlichen Diskussionen an mehreren Orten weltweit. Das mehrtägige Event im Festspielhaus Hellerau blieb über Pfingsten trotzdem in erster Linie den Tänzern und Produzenten der Szene vorbehalten. Trotz äußerst spezifischer Kommunikation im Vorfeld und der Tatsache, dass das genaue Programm bis zum Schluss unter Verschluss gehalten war, dauerte es nur wenige Tage, bis die Akkreditierung bereits wieder geschlossen war. Mehr als 500 Künstler aus gut 30 Ländern hatten den Sprung ins kalte Wasser gewagt und waren der Einladung auf eine unbekannte Reise gefolgt, wie die amerikanische Choreografin Meg Stuart es nannte, die die künstlerische Leitung innehatte.

Dass sich diesen Wagnis gelohnt hat, zeigte sich bereits zum Auftakt. Das Festspielhaus Hellerau als Veranstaltungsort hätte kaum besser gewählt werden können, nicht allein die räumlichen Möglichkeiten, auch das ganze Areal boten Möglichkeiten für einen Kongress, der eigentlich als solcher nicht bezeichnet werden sollte. Von Anfang an war klar, dass nicht ein theoretisch-diskursiver, akademischer Austausch im Vordergrund stehen sollte, sondern in allererster Linie eine Begegnung mit offenem Ausgang.

Dafür sorgten nicht nur die Campingmöglichkeiten oder die Tischtennisplatte. Jeder Teilnehmer erhielt für den Zeitraum mehrere kleine Aufgaben, denn das Miteinander sollte auch mit dem Essen gestaltet werden. Jeder durfte mal Gemüse schnippeln, mal das Essen servieren, mal Geschirr abwaschen. Dass das bei der Anzahl der Teilnehmer nicht völlig reibungslos verlief, tat der Atmosphäre keinen Abbruch. Ganz im Gegenteil.

Und genau das war es, diese Atmosphäre, die den Kongress geprägt hat. Über allem lag eine grundlegende Entspanntheit, auf die sich einzulassen wirklich nicht schwer fiel. Ein kreatives Dahinfließen, über der Wiese hing immer wieder ein besonderer Frühlingshauch. Wer tanzt, stellt keinen Krieg an. Und immer wieder kamen Themen an die Oberfläche, die in ihrer Gesamtheit die Frage nach heutiger Identität ausmachen: gender, black issues, female gaze, queerness. Politische Positionierungen waren da höchstens marginal. Stressfrei, nach innen gekehrt, reflexiv. Es galt, Kraft zu schöpfen. Vom Zentrum Dresdens und seinem Lärm entfernt, war genau das möglich.

Neu an diesem Format war auch, dass Veranstaltungen für die Öffentlichkeit nicht im Vordergrund standen. Am Samstag mag die Menge zwar mit dem Event „Down by the River" eine aus der exponierten Blase und hinein in die Stadt, aber schlussendlich blieb man auch hier weitgehend unter sich. Das könnte man kritisieren. Das ermöglicht die Frage, warum ausgerechnet Künstler aus dem Performativen Bereich für mehrere Tage zusammenkommen, ohne dem Publikum eine Rolle zuzuweisen. Genau das ist es aber eben. Diese bewusst gewählte Situation als sicherer Ort, als Schutzraum, in dem man sich unter Seinesgleichen befindet, war die Grundlage, die den Künstlern das innere Loslassen ermöglicht hat. Wer die Gelegenheit erhält, so richtig „nerdig" zu sein, wird kreativ.

An dieser Stelle schließt sich in gewisser Weise ein Kreis, wenn man den Blick zurück wirft und sich daran erinnert, wie das Festspielhaus Hellerau in der Vergangenheit als Labor galt. Genau das war es auch für den Tanzkongress: ein Labor, in dem jeder für sich werkeln konnte.

Teilnehmer aus allen Ecken der Welt kamen in Hellerau zusammen, um sich und dem Tanz zu begegnen. FOTO: KLAUS GIGGA

Hellerau, wie es leibt und lebt

Von Gabriele Gorgas

Die einstige Bildungsanstalt des Musikpädagogen und Komponisten Emile Jaques-Dalcroze hat sich zu Zeiten ihrer pädagogischen, künstlerischen Nutzung immer auch als ein intensiv zu erfahrender Ort der Begegnungen erwiesen. Und es ist wahrhaft kein Zufall, das zum nunmehr im Tessenow-Gebäude wie auf dem vielseitig nutzbaren Festspielhausgelände der Tanzkongress 2019 als Arbeitstreffen ganz besonderer Art stattfand. Mit hunderten internationalen Teilnehmern wie auch Neugierigen, die sich herein gewagt haben, sowie dem kleinen schwarzen Hund Xavier mittendrin, stets unterwegs auf langen Fluren und Treppen.

Frei von Getriebenheit, von Zwängen

Der Kongress ist schon wieder Geschichte. Und es gibt auch eine Fülle von Geschichten, die nun weiter erzählt werden, Erfahrungen, die sich eingeprägt haben. So dass sich das Experiment quasi entwickeln und gedeihen kann, auch über die Kongresstage hinaus. Hellerau, wie es leibt und lebt. Mit einem Treffen frei von Getriebenheit, von Zwängen (ausgenommen der Küchendienst) und welches trotz unzähliger Programmpunkt noch überschaubar blieb.

Dabei ist der große Saal so genutzt worden, dass man ihn tatsächlich behutsam offen erleben konnte. Und jene, die diese Wirkung bislang nur erahnt hatten, wissen nun um die Besonderheit des Ortes, tragen den Impuls weiter in sich. Erfahrbar zum Beispiel auch bei der gewitzt-bewegten „Erweckung" der Dalcroze-Zeit mit Hemanzi Heinig. Oder beim Totentanz-Ritual mit Maria F Scavoi und Wladimir Miller sowie Live Music von Marc Lohr und Mieko Suzuki.

International geknüpftes „Tanz-Netz" 2019

Ein wirklich ungewöhnlicher Kongress. Er sorgte für Bewegung, hatte Format, machte neugierig, aufmerksam. Und ließ Teilnehmer wie Gäste sogar miteinander schweigen (wie beim Wigman Walk), schaffte es in Zusammenarbeit mit der HfBK sowie insbesondere mit Stefanie Wenner als Initiatorin bei Down by the water die Aufmerksamkeit auf Pflanzen zu lenken. Und das im weitesten Sinne, ganz nah, bei der Elbe und mit Hilfe der „Gräfin Cosel". Wir sich überhaupt viele mit eingebracht haben in dieses insgesamt kurzes, bewegt-bewegliche Netzwerk, das letztlich im wahrsten Sinne des Wortes sowie frei von Abgrenzungen ein international geknüpftes „Tanz-Netz" 2019 geworden ist.

Figure 5: Photograph of newspaper article about the German Dance Congress 2019, titled "Im Labor" (engl. In the laboratory). Copyright: Dresdener Neue Nachrichten.

To sum up: Dance research in the late 19th and early 20th century emerged to complement purely rationalist scientific research in answering pressing social questions of economic precarity, physical wellbeing and modern alienation. In collaborating with a range of scholars and scientists, dance researchers hoped to offer a holistic rather than disciplined approach to research and experimentation. Informed by and embedded in the physical imperative and phenomenological spirit of its time, dance research's observing, studying, and training

bodyminds not only seemed like a science proper but like a legible strategy to cure individuals and society.

Does dance research have a similar function today? With society declared in permanent crisis, it may be, again, that we are looking to the arts, and to sensuous, bodily, and creative practices such as experimental and contemporary dance for tangible aid. Again, dancers collaborate with scientists such as cognitive scientists and neuroscientists to measure, standardize and compare what they know through individual experience. However, even more so than in the early 20th century, dance is a precarious affair and dance researchers are not taken seriously as either scholars or social reformers by a mainstream audience. Why are they so keen to research? Let us find out in the next two chapters.

Figure 6: Daily General Assembly at the Tanzkongress 2019, Hellerau, Germany. Copyright: Ane-Sophie Reichert.

Chapter 2: Researching Tactile Attention with the ISSC

This chapter is based on ethnography and collaboration with an international group of researchers who form the *Institute for the Study of Somatic Communication* (ISSC). The ISSC studies attention as a creative, physical, and kinesthetic skill, thus challenging canonical philosophical, neuroscientific and cognitive science research that conceptualizes attention primarily as a phenomenon of mind, brain or nervous system. Meeting in local and virtual co-laboratories, the ISSC investigates attention not in lab studies through fMRI scans and EEG recordings but in movement-based practice in dance studios. According to the ISSC researchers, training one's attention in physical and kinesthetic (movement awareness) practice, enriches and transforms one's experience and thus one's understanding of the world. In fact, the researchers of the ISSC are professional dancers and the ISSC advocates mind and body research in dance practice.

How does one study one's attention under the presupposition that attention is embodied and enacted? How can attention be a skill, when skills are commonly assumed to become automatic and unconscious once learned, and at the same time be available to conscious awareness, thus being open to conscious training?[1] In fact, might attention even be an intersubjective intercorporeal phenomenon distributed through an ensemble of moving dancers, as my interlocutors suggest? What are the theoretical assumptions that inform the dancer's research projects, what are their research protocols and questions? What can we learn from them in a moment in time characterized as a "crisis of attention" (Burnett, Hansen & Smith 2021),

[1] Skills such as riding a horse or cutting paper are perceived to become automated and thus unconscious once they have been learned and mastered by social theorists such as Marcel Mauss [1934] (1936), Pierre Bourdieu [1972] 1977 and Michel Foucault [1975] 1995. This view has become increasingly challenged by empirical and theoretical evidence, for example by philosopher of cognitive science Ellen Fridland, who argues that it is an open question as to whether skilled technique is unconscious and thus difficult to control or to modify based on a review of recent research on expert sports practice (Fridland 2017: 1550).

with media corporations and ad agencies like Netflix, Instagram and TikTok forming and using our patterns of attention on the one hand, while a lot of time and money is spent on calming overstimulated and distracted human attention through practices like mindful meditation on the other?

Attention has been of concern to a diverse array of scholars. Western theories of attention usually begin with Descartes and Locke after jumping to William James' seminal definition of attention (James 1890, comp. to Pedersen 2021). The change and specific organization of attention in modernity has been of concern to social theorists from the beginning of the early 20th century on (Tarde 1902, Simmel 1902) up until now (Crary 2001, Citton 2017, Burnett & Knauss (eds.) 2022, see both Crary and Citton for genealogies of social theoretical attention research and Pedersen et al. 2021 for a survey of the anthropology of attention). In parallel, psychologists have been interested in attention for at least as long. Today's most publicly prominent attention research comes from the domain of the cognitive sciences and the neurosciences. These fields have advanced detailed theories and models of attention yet concede that they only begin to understand attention (Abernethy et. al 2007, Wilmer et al. 2017) and are divided on the issue (Wu 2014: 4). Behavioral economists, most prominently Daniel Kahnemann (1973) have put forward wide-read research on attention as well, coining the term of the attention economy (Simon 1971) and describing attention as today's most valuable currency. Anthropologists have carried out little research on attention as an ethnographic object or analytical concept (Pedersen

et al. 2021: 312), with exceptions (Csordas 1993, Schüll 2014, Cook 2018) and more research emerging recently (see Pedersen et al. 2021 for an overview).[2]

With this plenitude, why should we follow dancers as they research attention? In one way, we can understand the dancer's work as being informed by and contributing to a growing interdisciplinary network of researchers that try to understand attention, reading and attending to each other's work, collaborating on experiments and publications. As I have argued in chapter two, such interdisciplinary networks have a long history, which can be hard to discern in face of the disciplinary and institutional separation of the arts and sciences.[3]

Yet beyond this, the dancer's work is a particularly significant node in the attention research network since it addresses how to train and strategically use one's attention in an embodied and conscious manner, a skill that cognitive science just begins to explore (Petitmengin & Lachaux 2013). If "attention as *techne* plays a crucial role in the sociocognitive and intersubjective processes through which human beings are made into certain kinds of

[2] The authors of the anthropological review on attention suggest that anthropologists have indeed studied attention yet have done so more implicitly than other disciplines, especially in the fields of anthropology of data, media and the digital, with a focus on "attention-seeking" machines, devices and programs and in the anthropology of religion and ritual, with a focus on the cultivation of embodied and intentional techniques of attention (Pedersen et al. 2021: 312).

[3] Nita Little, who heads the ISSC, for example, has been influenced in her thinking by Gibsonian ecological theory of perception and development, by the work of developmental psychologist Daniel Stern, by philosopher of mind Alva Noe and by developments in quantum physics. As Nita began to develop her research on attention in San Francisco and Santa Cruz in the early 1970s, elements of quantum physics theory were not just relevant to physicists but had become an approach to make sense of the structure of reality in California's counterculture movements. Historian of science David Kaiser, whom Nita references in her dissertation, shows how a group of physicists at UC Berkeley immersed in counterculture movements developed a theory of quantum mechanics that was neither funded by nor intended to serve technoscientific interests yet would reorient the field of physics as much as serve as a fitting outlook on the world for a heterogenous field of somatic practitioners, psychologists, dancers, musicians and cyberneticians of which CI dancers were very much a part (Kaiser 2011). In Nita's words: "The new physics in general and quantum mechanics in particular gave scientific credence to notions that we live in a world of uncertainty, that matter and energy are an inseparable dynamic, and that observers impact outcomes [...]. At issue was no less than the "relationship" of energy and matter, or the structure of reality. [...]" (Little 2014: 23). In short, the idea here is that just like quantum mechanics was conceived of in and valued by an interdisciplinary milieu, the same might hold true for attention: understanding attention in comprehensive ways necessitates an interdisciplinary approach. Tracking and mapping this interdisciplinary approach requires that the ethnographer looks beyond the confines of the laboratory.

persons and subjects" (Pedersen et al. 2021: 319), I turn to professionals of this technique to understand attention in more nuance. Let me say a bit more on this.

At an early point in his career, the influential biologist, philosopher, and neuroscientist Francisco Varela, who significantly contributed to the development of the research paradigm embodied and enactive cognition published a paper called "Not One, Not Two" (Varela 1976). An important point of this paper, which the philosopher of embodied cognition Evan Thompson has highlighted (Thompson 2004), is that a scientific investigation of the human mind and consciousness becomes meaningless if it loses touch with the direct experience of conscious phenomena such as thinking, being aware of oneself, paying attention or feeling emotions. Thompson argues that Varela wasn't as much concerned with the metaphysical difference of mind and body but rather with tackling the "dualism of mind as a scientific object versus mind as an experiencing subject" (Thompson 2004: 382). Varela hence advocated for the active incorporation of phenomenological investigations of experience into scientific research protocols. In their book *The Embodied Mind* (1991), Varela and Thompson argued for a "need for back-and-forth circulation between scientific research on the mind and disciplined phenomenologies of lived experience" (Thompson 2004: 382).

Since then, cognitive scientists and neuroscientists have engaged dancers, meditators, and yogis to help them study phenomena of mind such as attention. They enlist these practitioners because they professionally cultivate "the capacity for attentive self-awareness" (Lutz/Thompson 2003: 37). In the words of the neuroscientists: "This capacity enables tacit, pre-verbal and pre-reflective aspects of subjective experience – which otherwise would remain simply 'lived through' – to become subjectively accessible and describable, and thus available for intersubjective and objective (biobehavioural) characterization" (Lutz/Thompson 2003: 37). It is

the talent to direct one's awareness from habitual immersion in everyday life toward examining one's own experience that fascinates neuroscientists and which they want to use. Their goal is to map subjective experiences of consciousness (first person description) onto biological mechanisms (third person descriptions) (Seth 2016), thus creating an epistemologically and methodologically sound link between neurophysiology and consciousness. In other words, they work toward a quasi-isomorphism of mind and brain.[4]

The neuroscientists pledge to see the dancers, yogis, and meditators eye-to-eye, letting their phenomenological experience inform the interpretation of fMRI visualizations and EEG data. Yet, dancers, yogis and meditators are usually not involved in the research design and interpretation of research results.[5] Their job is simply to contribute a certain piece of information to a larger research heuristic. From the perspective of a cognitive or neuroscientist, this makes sense. Dancers are the objects of research, reporting *subjective* information on introspection in order so that an *objective* model and general criteria for consciousness can be generalized from subjective particulars. Yet from the perspective of the dancer involved, this experience can be frustrating because they don't have a say in developing or interpreting the research. Often, they are not even fully let in on what the respective studies look like. There is, in the words of philosopher of science Suman Seth, no "epistemological equality" between the different fields of expertise (Seth 2017).

With this chapter, my aim is to show how the dancers qua their profession as researchers use their trained bodies and minds *themselves* toward the end of exploring, experimenting with and training attention. In doing so, I illustrate that their expertise stretches beyond the ability to

[4] Progress on this goal has been anticipated and research is well funded. Yet, its going slow (Noë 2010).
[5] They are exceptions to this claim, for example collaborative studies of dancers and cognitive scientists at the University of Vienna (Kimmel) and CNRS Paris (Bachrach).

verbalize implicit aspects of subjective experience. As will become apparent, dancers are interested in finding out generalities about attention and consciousness, too. Yet, since their inquiry is firmly grounded in first-person experience, and in communal sharing of such experiences, as well as in collective movement experiences, they are aware of the problems and limits of general claims about a kind of universal attention. I'd argue that for them, a general claim doesn't matter as much as for a cognitive scientist or a phenomenologist because their outlook on the world is dynamic by choice. Its logical for the dancers who live through movement that there can't be one fixed pattern for how attention functions for everyone. After all, not only do different people have different experiences attending to attention, but the same person will also have a different experience every time they attend in movement research because they themselves, as much as the environments that they enact and through which they are enacted are never not in flux. This perception shows how the movement practice of the dancers impinges on their conceptual outlook on the world.

ISSC dance researchers think of the world as fundamentally dynamic, neglecting more broadly the existence of objects that are consistent in content and shape through space and time. Thus, hypotheses are never framed as statements but always as propositions to be tested and to be rephrased. This does not mean that there cannot be regularities or laws. It means that it is taken for granted that these rules can only apply to specific cases in local instances and are bound to change as time moves on. This dynamic outlook explains the dancer's understanding and openness to cultural variation of what appear to be neurobiological or anatomical facts. [17] While the pinning down of an experience as a scientific object is necessary for the phenomenologist or the neuroscientist, and while dancers are highly interested in and engage

with literatures produced based on abstracting generalities from a multiplicity of experiences, doing so themselves seems redundant.

A final answer as to why we should be interested in the dancers' understanding of attention goes as follows: From what I have observed, the dancers qua their role as artists and educators are in a unique position to activate and hold together biological, cultural, social, and ethical dimensions of research on attention. They scale from micro to macro, investigating a specific attentional capacity on the dancefloor in one moment, evaluating anatomical visualizations and cognitive science research on attention in the next, actively probing hypotheses in movement and finally teaching or lecturing about the ethico-political potential of changed patterns of attention at educational or public events and academic conferences. While this bridging of contexts and materials has its drawbacks, it nevertheless accomplishes something that academic researchers promise yet often fail to deliver: a practice-based interdisciplinary research paradigm that brings together social, biological and political dimensions in the study of the human body and mind.

The ISSC and Collaborative Attention Research

It's a foggy Saturday morning in December 2017 and I get ready in an Airbnb in Seattle. I'll be picked up in five minutes by Nita Little who has agreed to take me to today's meeting of the Seattle Co-Laboratory of the Institute for the Study of Somatic Education (ISSC). Nita[6] has

[6] From here on Nita could be called Nita, she could be called Nita Little or she could be simple written about as Little. While she would probably be Nita if she was a friend and ethnographic interlocutor, she would be cited as Little if she were a theoretical source I draw on. In my writing, Nita, as I have decided to call her because she is a friend and close interlocutor, occupies a liminal space of both providing ethnographic and epistemological insight. She is a published academic and public author whose understanding of attention is drawn on and critically interrogated in this text and other written work *and* she is an informant from whom I have learned and alongside whom I have worked. Calling her Nita has impact in that it differentiates her from other theoretical interlocutors I

been a dancer since the 1970s and was pivotal in the development of the dance genre contact improvisation which she has performed, taught, and developed ever since she was first introduced to the material in an experimental class with Steve Paxton during her time at Bennington college (Novack 1990: 63). Today, Nita is a famous and highly respected CI authority, traveling the world to teach workshops and classes. Nita is the one who has raised the idea that guides this chapter. Namely, that attention is not located in the mind nor is it a purely cognitive process. Rather, she suggests that attending to something is a practice firmly grounded in the dynamic bodymind.[7] I've been introduced to Nita last summer at the annual *Impulstanz Festival* in Vienna, where she has been teaching her material for many years. I had told a colleague about my historical work on dance as research practice and how I couldn't help but see dance labs and dance research projects announced all around me again. Well, Nita is doing exactly that they said. Now here I am, riding with Nita to a beautiful wood-floored dance studio in a residential suburb of Seattle.

As we arrive, a few dancers have gathered already and are changing into soft clothes that support movement. Some are already on the floor, warming up and stretching. For the next three or so hours, I witness one round of a research protocol that Nita has developed: first, there is a bit of talking and reflecting on what happened in the last research lab meeting and especially about the writing that followed from that meeting and that folks have submitted online into a shared

cite by last name even if I know them personally. Yet, I have decided to call her by her first name because this best reflects our personal and professional relationship. This does not mean however, that her theoretical insight is of less value than that of others. But it might remind the reader throughout the text of her double role as both theorist and interlocutor.

[7] Bodymind is a term my interlocutors use to signal that they believe that body and mind are not separate entities but function as one integrated unity, the living, moving, thinking and feeling human organism. Especially if one studies attention, the separation of body and mind does not make sense because attention is neither a purely cognitive capacity nor a purely physical capacity (Dumit/Little 2020). Dynamic is added here to signal that if a being is alive, they are always animate, i.e. in motion. There is no complete standstill other than death, there are just various superimposed levels of speed and qualities of motion.

google drive folder so that everybody can read it. What follows is a warm-up, a loose score of moving together in the genre of contact improvisation dancing, interlaced with stretches and pauses, laying on the floor, taking time to tune in and try out what is available to one today in terms of movement and perceptual capacities. This moment is about arriving in the space and the community, sensing the atmosphere of the group. The warm-up is then followed by a discussion about what has just happened, how people have perceived and made use of their attention. A dancer brings up the differentiation of visual and tactile attention. Indeed, that there is a choice to make between attending to something visually or tactilely. One strategy to divert oneself from the habitually stronger visual attention is to concentrate on the difference between peripheral and focal visual attention, Nita suggests. Where the eyes' movement reaches a limit, in the lateral periphery of one's range of vision, other body parts can take over in attending to one's environment.

The focus for the physical inquiry for today is set to be the nature of one's tactile attention: What is it like? How do you get into it? How and when do you notice that you are in a specified mode of attention? The dancers then set out for a 45 minute long research score, which will look to an outsider like 45 minutes of contact improvisation (CI) dancing, a dance form that is, as the name suggests, usually not choreographed but improvised, following physical and communicative conventions of contact improvisation that have manifested over the years: the giving and taking of weight of one dancer to another or simultaneously, of experimenting with the forces of gravity in somatic dialogue with one's fellow human dancers and the floor, walls and objects in the space one uses.

CI dance, described as an embodiment of the social ideologies of US American white, middle class, college-educated communal and anti-authoritarian subculture in the 1970s by anthropologist Cynthia Novack (Novack 1990: 10-11), appears to be a genre well suited to the task of an experimental practice. In fact, CI was "invented" as research practice and through months and years of physical research, first on gymnastics and wrestling mats and then on hardwood floors, as dancers threw themselves off balance and into the air, practiced falling and rolling and catching each other in duets and groups. The idea was to engage in shared movement, researching what a body can do, motivated by sensing and playing seriously with weight, touch, and speed. Nita describes contact improvisation as a genre inextricable from its main preoccupation, namely, the hunt for physical laws and attentional habits that define the movement of two or more bodies. Imagine the thrill of the dancers realizing that these laws were "hidden within the dance" they were exploring (Little 2014: 34)! Influenced by the experiments with consciousness of the US American counterculture movement, the social uptake of quantum physics and a larger culture of experimentalism, CI was, importantly, a reorientation of perceptual and cognitive capacities (Little 2014: 21). Yet, rather than spurred by hallucinogens, the dancer's experiments were grounded in expectant physical and mental training.

CI was intentionally never formalized or trademarked into a closed movement system such as the somatic Feldenkrais method or the dance style Limon technique.[8] Rather the dance form understood itself as a set of ideas and principles for movement open to reconfiguration and use by the CI dance community. An open source-movement if you will. Like modern dance in

[8] Ultimately, the heterogenous collective of CI dancers held, at least in large parts, that a commodification of the practice would be antithetical to its egalitarian and community ideals. Nevertheless, independent CI teachers and groups tried to earn and still earn a (precarious) living off teaching CI (more on this in Novack 1993: 80ff.).

the 20s and 30s, contact presented itself from the beginning as a form of art and a way of life rather than as social dancing or entertainment dance (Novack 1993: 23).

Early CI dancers were influenced by and often trained in the cultural milieu of modern and postmodern dance: the Judson Church community, dancers such as Anna Halprin and Merce Cunningham, experiments in physical theater by groups like the Living Theatre and Bread & Puppet, and the early movement classes of Robert Ellis Dunn in New York. They were influenced by a scientific and sensuous focus on the body in therapeutic somatic practices such as Feldenkrais, Alexander technique and Bartenieff fundamentals, and, finally, by martial arts forms such as Tai Chi, Karate, Judo and Aikido. CI managed to combine elements from this diverse array of traditions into one practice (Novack 1993: 52). Reflecting elements of the modern dance tradition that preceded their work, early CI dancers such as Steve Paxton and Nancy Stark Smith set a focus on physical sensation rather than representation, aiming to practice movement with an explicit lack of context such as aesthetics, emotions, spiritualism or political themes being played out in the work, wanting to find out "*what was possible instead of what looked nice*" (Stark Smith, quoted in Novack 1993: 68, emphasis mine).[9] A dance movement was initiated internally, within the somatic experience, rather than based on an image-based aesthetic choice (Little 2014: 30). In other words, what a movement looked like to the audience was never a matter of concern. This dance form was not about illustrating preconceived ideas in a set choreography but about what would happen spontaneously as dancers entered a situation of improvising movement together on equal footing.

[9] In this regard, consider this statement from Steve Paxton in the first Contact Newsletter in April 1975: "I want to go on record as being pro-physical-sensation in the teaching of this material. The symbolism, mysticism, psychology, spiritualism are horse-drivel. In actually teaching the stand or discussing momentum or gravity, I think each teach should stick to sensational facts….Personally I think we should guard our thoughts about auras and energyfields and E.S.P. until we can actually demonstrate and teach such matters. Personally, I've never seen anything occur which was abnormal, para-physical, or extra-sensory. Personally I think we underestimate the extent of the "real."" (Paxton, quoted from Novack 1993: 81-82, emphasis in original.)

As a dance genre, CI was unique in offering a political vision that stretched beyond the dance studio, questioning the war on Vietnam, authority, and the legitimacy of powerful dualities such as mind/body and male/female (Little 2014: 6). While these groups began to perform quite early on, "they were primarily invested in exploration into states and actions of inquiry, attention, and physical research rather than performance (Little 2014: 130). Yet, performances were demonstrations of the material that was being developed and tried out which excited and animated the audience to participate in this new and unconventional dance form (Novack 1993: 71). Over the years, CI dance would become more of a consolidated genre, with CI dancers traveling across the country and internationally to teach and perform recognizable techniques. The magazine *Contact Quarterly* which grew out of an earlier widely distributed newsletter, and which is still in operation, contributed to the formation of a canon of distinct ideas and propositions arising from the CI dancer's practice.

Back to the Seattle studio: After the dance research score has ended, there is a water and pee break and soon the dancers gather in a circle to exchange experiences and thoughts on what has happened. A recurring motif in their statements is the joy felt when experimenting with and attending to an unusual form of perception, i.e. tactile or peripheral attention. Dancers highlight how this change in attentional registers, when they don't try to enforce it with pressure but rather let it hover "like an invitation", creates a way of perceiving and being that feels new and adventurous. They are excited to try it out further and in situations beyond the dance studio.

Dancers change and slowly depart, chit chatting on their way out and being reminded to upload a reflection of their findings into the google drive folder for everyone to read. The writing is the hardest part to accomplish for the dancers: one thing is to find the time, but the other is a certain insecurity when it comes to describing one's movement experience verbally. In the dance

world and beyond, the dogma that bodily sensuous experience can't be put into words without losing much of its purchase holds sway. A dancer expresses that they feel insufficiently trained in the type of language they would need to describe their experiences. And there is a confusion as to which available registers to use: there is ordinary language, there is the professional language of the dance community, defined by an extensive canon of words that can capture the bodily, sensuous, creative, and dynamic nature of the practice and then there is Nita's own conceptual vocabulary, developed through many years of researching, teaching, dancing, and writing. The problem here seems to be that writing is primarily thought of by the dancers as realist representation of experience rather than, say, as establishing a form of dialogue with the movement experience. Within that framework, writing must produce a near-perfect equivalent to the movement experience or else it fails. Hence, failure is as inevitable as it is feared.[10] Nita encourages the dancers to just get going and practice writing because it is from this place that they eventually will find their own voice and become better writers. Nita, Katherine, a mathematician and co-director of the Seattle ISSC and I leave together to get lunch.

In the meantime, let us take a closer look at the dancer's observation. In the group chat after the research score, many dancers agreed on describing attending to something as akin to perceiving something while directing their awareness to this act of perceiving. That is, they were interested in deconstructing what constitutes the act of perceiving. While sense perception is described in standard psychological literature as something that we do unconsciously,[11] dancers

[10] Many thanks to William Mazzarella for helping me to think through this.

[11] For example, in the *sandwich theory of mind*, bodily sensory perception gains input (1), which is then cognitively processed (2) and finally results in behavioral output (3). The mind consists of these three modules where each level performs a broad function and then passes the resulting representations on to the next module. Perception is not available to conscious thought in this model (Hufendiek 2016, 153). Of course, then, just because I don't use my conscious attention to balance on the sidewalk, this might not be the case for everyone. Anthropologist Kathryn Geurts makes the argument that sensation, and specifically the sense of balance is a habit that is socially and culturally specific (Geurts 2003).

described that they had access to differentiate between different registers of attention, e.g., visual and tactile, and then were able to actively and consciously engage in the process of "attending to." It thus appears that two actions are involved. First, there is attending as a mode of perception and second there is being aware of one's perceiving as attending. It could also be, however, that these two levels collapse into one in the moment of conscious perception. In everyday life, I use perception as an orientor to guide me smoothly through my day. In a situation such as walking on a sidewalk without falling off its edge, I do not consciously attend to or direct my visual perception. Not conscious is meant in the sense of I am not aware that I scan the sidewalk's edge to not fall off although I nevertheless do so.[12] However, when the dancers direct their awareness toward one or more perceptual registers, e.g., vision or vision coupled with touch, it appears that their perception becomes attentional in quality. In other words, seeing X and being aware of seeing X is already a form of attending to something. And since the act of seeing then is at least partially self-aware, one can play with using it, going against one's intuited or habitual ways of seeing. For example, Nita suggested that if one diffuses one's vision within the full reach of one's peripheral view, then one can more easily attend to perceptual modes such as touch. This would mean that attention is enacted as conscious perception. And it would follow that attention can be trained and then intentionally directed to a certain extent. What becomes apparent if it hasn't already, is that CI based research on attention is not solely a training of the body, it's a training of movement, thought and perception and the precise configuration of these.

These findings of the dancers, explored non-verbally through collective movement scores and verbalized afterward in conversation, micro-phenomenological interviews,[13] and experience

[12] Of course, more than visual feedback is needed to not fall of a sidewalk.

[13] For the ISSC, the method of micro-phenomenological interviewing is central to understanding the detail of experiences of somatic communication and attention. Micro-phenomenological interviews explicate the order and

protocols compare to research in sports psychology on professional athletes. Researchers here found that an expert's capacity to detect and act on relevant (relevant to the domain of expertise) perceptual input differs from that of a novice (Abernethy 1996).[14]

The important part here is that attending to and actively using perceptual input is an activity that can be schooled. What dance researchers underline, however, beyond the findings of the sports psychologists on the performance potential of the athletes, is the radical potential that lies in reshaping one's attention. Nita and anthropologist Joe Dumit put it this way: "Attention can be trained to do extraordinary things, precisely because the ordinary is defined by the existing forms of attention we have learned" (Little/Dumit 2020: 260). In other words, the ways in which we are taught to attend to something, for example in family life or in school, habitual and non-verbal or explicit, shapes who we are and thus the limits of what our attention can be and can do. Yet, if attention is trained, these limits shift.

structure of one particular experience with probing questions that lead to the reconstruction or re-experiencing of that particular experience. The method is informed by Pierre Vermersch's explication interviews and neuro-linguistic programming, with Nita being a certified and experienced professional of the latter. Micro-phenomenological interviews are used in cognitive science, neuroscience, and phenomenology, whenever one tries to understand the content and structure of a specific experience (see for example Kimmel 2015, Petitmengin). So far, the ISSC uses micro-phenomenological interviews to verbalize the experience of training in and switching between different attentional states, individually and in ensemble dancing. The interviews present an important tool in overcoming a belief strongly held in the dance community. Namely, that what one has experienced is so uniquely embodied that it can't be captured adequately with language or would immediately be diminished in quality if it was to be put into words. If a physicalmental experience can be chronicled through an experiential protocol, one form of explicating the seemingly inexplicable has been found. Beyond Nita, a few members of the ISSC are trained in micro-phenomenology and the ISSC plans to adapt the interview technique so that questions fully take into consideration that the research scores are movement-based. As it stands, currently, micro-phenomenological interviews probe for emotions, sensations, and perceptions, yet not much for tactile, kinetic, and kinesthetic experiences. Yet further collective development of the interview guide has been postponed because of Covid as I write. Ultimately, however, the goal is to have trained micro-phenomenological interviewers in each CoLab.

[14] "The more kinds of perceptual registration, the more detailed the parts are that can be recognized, the more finely tuned the sensory record that furthers the potential for greater articulation. This is basic ideokinesis (Todd, 1936, Rolland 1984, Dowd 1990, Bernard 1997, Sweigard 2013). And this in its most obvious sense is the difference between beginning performers and skillful ones." (Rothfield 2005).

The Study of Attention

This type of shared attention that is a relational practice rather than an inward-looking individual concern is central to Nita Little's understanding of attention. Nita, the founder of the ISSC, has researched attention in her dance practice for more than 40 years.

It was early on, in the US American shift from modern to post-modern dance, with the emergence of the Judson church and work by Judith Dunn, Anna Halprin and Yvonne Rainer and others who would retrospectively be called postmodern, that Nita decided to turn away from dance as a mode of presentation toward dance as an improvisational practice, geared toward exploration and innovation (Little 2014: 5). This decades-long inquiry would ultimately lead to the development of an idiosyncratic style and method of dance, driven by the aim to "evolve a dance that holds the emphasis on inquiry" (Little 2014: 9). And, ultimately, it led to the founding of the ISSC. As I get to know Nita, on the dance floor in workshops, on walks through Vienna, Berlin, and a forest on Vashon Island, an island in the Seattle Bay, and through reading her articles and her dissertation on attention, itself based on multiple years of dance research with two dance research labs in Santa Cruz and San Francisco, I come to slowly grasp her detailed and elaborate understanding of attention.

While psychophysiology of the late 19th and early 20th centuries relied upon first person phenomenal experience, introspective and phenomenological "data" has played a negligible role in experimental psychology and neuroscientific studies of attention of the past decades. Interest in first person phenomenal experience has only been vocal on the fringes of neuroscience and cognitive science, in the study of 4E cognition (embodied, embedded, enacted, extended). Nita and the dance researchers that she has trained and is collaborating with, however, primarily rely on phenomenal experience (individual and collective) and the description and verbalization of

such experience to study attention. From a natural scientific perspective, one could define Nita's method as phenomenological inquiry of skilled expertise of professional dancers. This is a study of experience; specifically, the experience of attention, from the first-person perspective and from understanding experience as an intercorporeal intersubjective phenomenon, in movement. Yet introspection might fall short here as a definition because the dancers are not simply "looking inside", paying attention to their emotional or mental processes. They report from their collaborative dynamic experience in movement, which is, necessarily, directed outward as much as inward in relating to fellow dancers and the environment they find themselves in. There is a constant moving back and forth between the calibration of one's own perceptions, emotions, and thoughts and what one encounters in each movement situation up to a point where it becomes difficult to neatly separate the two.

We might recall here Thomas Csordas seminal definition of "somatic modes of attention" as "culturally elaborated ways of attending to and with one's body in surroundings that include the embodied presence of others" (Csordas 1993: 138). Thus "to attend to a bodily sensation is not to attend to the body as an isolated object but to attend to the body' situation in the world […] because the body is always already in the world. Attention *to* a bodily sensation can thus become a mode of attending to the intersubjective milieu that give rise to that sensation (Csordas 1993: 138). In this sense, one's mode of attention is not biologically determined or arbitrary but attuned to as much as shaped by one's intersubjective milieux. And while classical phenomenological method is focused on the structure of ordinary experience, Nita argues that such a phenomenology often misses out on where the interesting stuff happens, namely, extraordinary experiences. It is in the latter, that the bodymind's habituated capacities are

challenged and reshaped (Little 2014: 15). Dance presents a field flush with extraordinary opportunities and thus, this is where Nita conducts her research.[15]

Attention: A Treasure Hunt[16]

Before we turn to a CoLaboratory and its multiple-week-long shared study of attention, let us prepare ourselves with some conceptual heuristics, as they have been developed by Nita in her doctoral research, to understand attention anew. Growing out of her lived experience and research with fellow dancers, Nita's dissertation includes motivations, research methods and findings for researching attention through the modality of CI dance. We can compare the process of turning the messy happenings of her dance research and laboratories into a dissertation that can be submitted for the fulfillment of a PhD degree to processes of streamlining, abstracting, and positioning as described in foundational laboratory studies by Karin Knorr-Cetina (2005) or Bruno Latour and Steve Woolgar (1986). Yet while engaging in these processes of reflection, the primary aim of Nita's dissertation is neither to propose a general theory of attention nor to be recognized as valuable in an academic research community. Rather, I suggest that we may understand her writing and maybe her practice of inquiry and teaching more broadly as an instance of situated knowledge (Haraway 1988), i.e., a knowing practice that is partial, situated

[15] Like classical phenomenology and in contrast to ISSC research, psychological cognitive science and neuroscience studies predominantly aim to gain an understanding of attention in general and thus attention research is carried out on lay people that have signed up to partake in advertised studies (whether the sum of study participants presents a meaningful representation of the average population is another question). To a varying degree, behavioral, psychological, and cognitive studies acknowledge variety and difference in attention patterns and capacity that is geographically, socially or culturally specific, but their object of research is usually a pool of people that is not characterized by their relation to or interest in attention.

[16] Nita has described dancing as a treasure hunt for new discoveries (Nita Little 2014: 34) reminding me of Eleanor Gibson's image of children as hunter-gatherers for new information—as problematic or reductionist that image may be.

and embodied and whose objectivity originates in reflexively knowing one's attachments to one's knowing and thus the partiality of the claims put forward.[17]

Nita herself articulated this position as follows: "[...] we do not attempt to reductively determine the bases of experience, but rather we look at the building blocks we can distinguish, given our cultural limitations, and then consider how they interact" (Little 2014: 64). Nevertheless, there is a certain claim to universalism, when Nita writes as well: "we are seeking the propaedeutics or first principles of attention, in order to make its training practicable" (Little 2014: 59). We might say that for her, while being aware of the origin and specificity of her claims, their truth is envisaged to be valid beyond their immediate area of origin—at least as a proposal to be tested and adapted. This is the case because there is the wish to contribute to a research paradigm from a place where one's expertise is strongly felt.[18]

---

[17] Haraway's definition of situated knowledges was formulated in critique of a type of rationalist objective knowledge, which is claimed to be neatly separated from the embodiment and enculturation of the researcher and which purports to be value-neutral yet has no heuristics to examine its own biases and norms. In face of the relativism leveled against postmodern anti-epistemological critiques of such "god's eye trick" knowledge, Haraway proposes a new grasp of the real, uniting material and discursive dimensions in a manner that is reflexive toward its own social and cultural embeddedness. Situated knowledge then, denotes a perspective that is partial, locatable in space and time, firmly grounded in concrete embodiment, politically accountable and open to epistemological debate (which can be technically mediated) (Haraway 1988: 583).

[18] The dilemma of specificity versus universality is one that permeates the work of the ISSC, reflecting the divergent positions within the field of attention studies. While economists, classical phenomenologists, sports psychologists, motor expertise scholars and cognitive scientists all would agree on the fact that there is one universal way of defining the experiential structure of attention (they just haven't gotten there yet and they indeed do account for individual variation to different degrees), socio-cultural anthropologists, anthropologists of the body, social theorists and feminist science and technology studies scholars would argue that such an idea of a universal structure of experience and thus a definition of the workings of experience is futile in face of the normative presuppositions of the natural sciences and the cultural, social and historical variation of experience and attention. They have, for example, criticized phenomenology as universalizing from a specific bodily dwelling (Ahmed 2003: 4) and we could transpose this critique to Nita's claim to universalism. Afterall, doesn't it seem dangerous to state generalities about the workings of human attention from the extraordinary position of highly skilled professional dancers? Nita for example thought of the ability to fine-tune one's attention as the basis for a more ethical human interaction insofar that it provides the ability to perceive and be present for response, Jenny commented that for her, the ability to notice the manifold did not at all result automatically in more empathetic behavior. Rather, it caused a standstill, being overwhelmed by too much input (Jenny Döll, ISSC VColab Week 3 Report). In this instance, we can see the limits of generalizing about attention from a specific, in this instance, an able bodied and minded position as discussed earlier and the need to reevaluate potentially ableist generalities, developed from able-bodied and able-minded research. The dancers I have worked with are divided on the issue of specificity and generality: They see and value the social scientists and humanities scholars' political stakes involved in arguing against universalism, but

Maybe the main aim of Nita's dance teaching as well as written work can be summarized as showing, simply, in movement and in theory, that attention is a complex and layered phenomenon that might be understood best in skilled movement experience. Through reporting her own discoveries and through leading her students into bodymind experiences where they can discover a variety of attentional states, Nita is foremost interested in designing perceptual potentialities for attending (to attend to—the practice of attention) (Little 2014: 14). In the words of social theorist of attention Yves Citton, she is interested in understanding "*what* we can do *with* … our attention" (Citton 2017: 171). This shifts the understanding from attention as a property or a state to have or to spend to attention as a form of action (Citton 2017: 171). Hence her wording of attending to something instead of paying or having attention.

According to Nita, individual potential for attending runs on a continuum: there is no everyday attention and professional attention, there "are only more or less trained bodyminds" (Little 2014: 14). This training, however, does not occur in a realist vacuum. Nita points to the normative limits of experience set by the cultures we live in (Little 2014: 159). Our patterns of attention are always already shaped as we are enculturated and socialized into localized and particular ecologies of attention.[19] Yet, if one's way of attending shapes who one is, and one can

---

they are more interested in the fine-grained and immediately applicable findings of the natural scientists. These findings are something they can probe, rub against, work with. They are less interested in politics and ideology than in the understanding of expert practice and experience, which is often sidelined in social scientific interpretive or structural analyses (Downey 2010). Or to put it differently: they are less interested in macro normative claims and more interested in micro empiricist hypotheses. The social scientists and humanities scholars that I present with this conundrum find themselves cognizant of the attentional phenomena I describe through the ISSC's research and agree on having experienced the practice of attention similarly. They have also asked, in the affirmative: Could one arrive at the same findings on attention from a different dance subdiscipline, implicitly implying what they theoretically dismiss: that there is a more general structure of experience to be detected across dance genres and contexts. We don't need an immediate solution here. It suffices for now to note the conundrum and to follow how stable generality is established and claimed and when it is altered or disposed of.

[19] I borrow the term ecology of attention from Yves Citton, who proposes it as an alternative to economy of attention (Citton 2017). In short, the idea of thinking of attention as a currency in an economy harkens back to behavioral economics, maybe most prominently to Thomas Davenport's and John Beck's book *The Attention Economy: Understanding the New Currency of Business* (2001). Citton proposes a reframing of the problem of finite human

take agency in shaping one's ability to attend, the question can be: What forms of attention would we like to have, and how can we train to get them (Little/Dumit 2020)?

To make it clear, the reshaping proposed here doesn't pertain to one's ability to interpret the world differently but to one's perceptual grasp of the world (Little 2014: 192). In the context of her work on West Coast evangelicals, anthropologist Tanya Luhrmann has described this as a theory of attentional learning where people learn specific ways of attending to their minds and emotions (in her example, with the goal to find God). These ways then change their experience of their minds and as a result, they begin to experience a changed reality. In Luhrmann's example, the evangelicals begin to experience a "real, external, interactive living presence" (Luhrmann 2012: xxi). In the example of the dancers of the ISSC, embodied reaction time might shift through the training of attentional skills, so that small shifts in a collective improvisation score can be anticipated much faster by a skilled dancer than by a layperson.

Let's take a step back, giving location to Nita's interest in understanding and training attention. Why did the study of attention present itself as necessary; why is Nita asking the questions she is asking? Nita came to the study of attention through her formative role in an emergent practice that we today call Contact Improvisation (CI). CI, especially in the beginning, was aimed at figuring out what bodies can do, literally and physically. A fall, for example, is a controlled act in modern dance – "more the appearance of a fall than its actuality" (Little 2014: 37). In CI, however, a fall was an actual fall. Nita recounts how she spent years tattooed with bruises as she tried to learn how to meet the force of gravity aptly and quickly enough. This

attention and inattention—away from thinking about attention in an economic paradigm (Citton 2017: 53) and toward thinking attention as a phenomenon that is collective as much as environmental. Attention, so Citton, is a collective phenomenon Citton 2017: 49): our attentional habits are influenced by those who surround us. Reminiscent of J.J. Gibson's ecological theory of perception, Citton conceives of attention not just as relational between humans but as an interaction between humans and their environment. As humans, so Citton, we persist by paying attention to what we need to thrive and simultaneously our attentional habits are shaped by the ways and values that configurate our environments (Citton 2017: 59).

meant, very concretely, fingers had to learn how to not grab, body parts had to be identified that provided better cushioning for landing on than others. It also meant to be constantly alert and aware of the physical moment, there was no time planned to stop and to consciously reflect. Nita describes this process not only as a quickening of response time but as a reorganization of one's knowing in so far as that one would be able to tune in and rely on somatic information. This, in turn, demanded a different kind of attention (Little 2014: 32).

What CI dancers underwent then, was a re-formation of the whole human being, "under the guise of training just the body" (Little 2014: 133). In that sense, asking what attention is was motivated by needing to re-organize it and in the practice of CI, the practical re-organization preceded a theoretical answering. To write her dissertation, Nita chronicled and systematized her conceptual language, her methods for and her findings on the physical and conscious reorganization of attention in a comprehensive manner.

Nita differentiates between presence and attention, which function in relation to each other. Presence here is not meant in a mystical or metaphysical sense, to be conscious or to embrace life. Presence, as Nita defines it, is not a state of being but a dynamic engagement of one and one's environment in relation. Nita here refers to the duality of human being: we emerge as people by making and by being made in interaction with our worlds; we shape who we become and yet we are always already shaped by and oriented to the world that we are part of. To be present is "the ability to be available to experience, to have the skills (what we do) that afford us access to different and varied experiences and the know-how to move (mentally/physically) between skills" (Little 2014: 163). Inspired by the philosopher of mind Alva Noe, himself inspired by J.J. Gibson's ecological approach, Nita defines presencing as a skill that allows us to participate in world-making and is thus critical to hone. In the words of

Noe himself, "the world shows up in experience only insofar as we know how to make contact with it" (Noe 2012: 2). And Nita would add, that making contact successfully depends on your attentional skills.[20]

A similar definition of presence, as well inspired by J.J. Gibson, has recently been put forward by anthropologists Anna I. Corwin and Cordelia Erickson-Davis (2020). The two authors define presence as the "direct, dynamic interaction of a perceiver-environment system" (Corwin & Erickson Davis 2020: 167) to overcome two problematic assumptions that undergird media studies, neuroscientific and anthropological studies of presence. These are "1) that there is a static reality external to the perceiver; and 2) feelings of presence are interpretations or belief states about more rudimentary sensory experience" (Corwin & Erickson Davis 2020: 167).

Attention or different attentional states are, in Nita's theory, the gateway and crucial skill to presencing, that is, to be available to an experience in formation. Or, in other words, "the making of presence is governed by our attention: its forms, composition, actions, strengths and concerns" (Little 2014: 59). The presupposition here than is that we have several "attentional modalities that have formed in ways synonymous with the training and choreographing of physical bodyminds, with culturally specifically attentional training starting as soon as one is born, continuing through one's youth, family life and education" (Little 2014: 62). There are, among others, practical forms of attention, e.g. diffuse vs focused attention; geometries of attention (lines, pathways, surfaces, volumes); peripheral (whole body) attention; speed of attention and the ability to move at the speed of one's partner's attention; and in Nita's more recent writings, feral attention (Little 2010, 2014, 2020). As one can train one's own attention,

[20] Yves Citton makes a very similar argument as Nita when he writes that where we direct our attention, we create value. In that sense, the making of cultural and economic worlds, which depend on objects being imbued with value, depends on value-creation. And "value-creation strongly depends on the way in which we distribute our attention" (Citton 2017: 16).

one can equally train to observe how attention moves through the bodymind of a fellow dancer or functions as a somatic communication tool in a group of dancers (more on that later).

Since attention shows up as a habituated, we can usually not recognize where or how our attentional patterns shape our experience (Little 2014: 62). To interrupt these patterns of attention, one must first discern what states of attention are formative of our experience (Little 2014: 62). Attending to one's patterns of attention will help retrain those patterns, consequently changing one's presence. This means attentional training results in new ways to be available to experience, i.e. knowing the world but also being in the world as lived experience is an ecological dynamic with one's environment (Little 2014: 15).

Identity flexes with Perception

Nita reports that new dancers are often inexperienced in managing their attention and their attention is hyperactive, meaning, it is unable "to locate or land" (Little 2014: 140). Cultivating one's attention enables one not only to be present but to have that presence be grounded in one's body. If one lives "above one's physicality", attentional capacities are greatly diminished because body and mind cannot act cohesively as a whole (Little 2014: 136). Training beginners, Nita devises scores that guide where and how dancers attend to, thus relieving them of their attentional inexperience (Little 2014: 140). Nita highlights that it is not an easy task to continuously "hold" the attention for a group of dancers but that its necessary to do this if the dancers cannot yet direct their attention themselves or switch between different attentional states (such as peripheral or directed). A next step is to set up situations in which the dancers need to search for answers that can only be found in sensate experience. In other words, the answer can only be found by focusing on "unmediated sensory experience." If this experiencing is surprising

and revelatory, it's a sign that one has successfully drowned out one's "cultural override" (Little 2014: 48).[21] Nita calls this practice "un-naming."[22] Un-naming has the function to sideline dominant referential thought and tune into the "subtle flows that happen upon, beneath, and within the flesh-form of the bodymind and its extended presence in space" (Little 2014: 95). For un-naming to be successful, one must let go of an idea of selfhood as an organized identity, of external or visual orientation, and disassemble into the multitude of perceptive and interoceptive information flowing.

Sense perception is the human mentalphysical basis for experience and attention is how perception organizes (Little 2018). The job is thus to first attend to one's various and overlaying sensorial and affective inputs. And then to notice in which attentional patterns this flow of information is organized. First, one might not trust one's perception. Indeed, what one hears or perceives might appear as imagined (Little 2014: 95). Yet as one practices, one's trust in sensorial and tactile information will become steadier. Sense perception in this frame is not passive reception, it is more like an act of active listening. Paraphrasing J.J. Gibson, Nita puts it this way: "Perceiving is an act, not a response, an act of attention, not a triggered impression, an achievement, not a reflex" (Little 2018). As one begins to observe one's own attentional patterns in such a state, one discovers that attention can be used actively and creatively (Little 2014: 84).

One way to use one's attention is to direct one's attention. This is called casting attention (Little 2014: 104). Nita describes casting with the metaphor of fishing: "Like a fisherman sending out a net, we cast an attentional web to look for kinds of information within a particular

[21] Yet is such an unmediated experience possible? Joan Scott has rightly criticized a naturalization of a type of naïve experience in the 1991 already—yet I always return to the point of: what else do we have to start than our experience, bearing in mind that it is always mediated by its social, historical, and economic emplacement?
[22] She writes that un-naming is a valuable activity for research because it unsettles one's given relationship to an object of concern, removing it from its preconceived referential context and meeting it as unique embodiment, i.e. modeling the process of discovery (Little 2014: 48).

experience. We may walk into a room and cast about for someone interesting to talk to" (Little 2014: 104). Casting includes what I would colloquially consider as inattention. Nita writes: "When we cast our backside as blind, we are in danger when someone throws their full bodymind toward it, because we will not be perceptually and peripherally thoughtfully present to the back" (Little 2014: 108). I suppose Nita would say that the attention that I direct to my back is insufficient to meet the situation at hand. Because "(w)hen we cast our backside as spatially present and interested in all the actions around it, we meet actions toward us before they have arrived on our flesh, we feel the mere proposal of meeting" (Little 2014: 108). Notice here how attention stretches beyond the boundaries of the body proper, extending into the environment in sensing and anticipating action to come, attending to other attentive human or non-humans, thus participating in the co-emergence of a situation. In this way, casting attention then makes us as much as it makes the world (both are not givens but co-constituted in experience) as one decides how and where to cast one's attention.

The Work of a CoLaboratory

Before the pandemic hit, the ISSC CoLaboratories were organized in person in specific locations with seven CoLabs in total (two in the US and five in Western Europe). Nita was an integral part and organizer of the Seattle CoLab and would travel to and train the other CoLabs while touring internationally to teach contact improvisation. Nita has set up the organizational structure for CoLab, with each CoLab comprising of a lab director who is a professional CI dancer (some labs rotate directorship) and a lab research assistant (RA) who has expertise in scientific research (and is often a dancer, too, or is interested in dance as research practice for personal or professional reasons). The ISSC CoLab in Hamburg, for example, has a cognitive

scientist as RA, the Seattle CoLab a mathematician, and I was assigned the role of RA for the Berlin CoLaboratory. The RA's job is to help the dancers become familiar with what it is like to structure and to document research—to funnel one's insights into forms that will be accessible to folks beyond the dance community. CoLabs meet regularly, some every week, some monthly. The Berlin CoLab that I was part of would organize itself in cycles of 6-8 intense weekly meetings in a row, then a few months' pause, followed by the initiation of a new cycle.

Experimental research in the dance studio orients along frameworks and concepts that are summarized in different textbooks and manuals. Foremost, there is a comprehensive ISSC manual that summarizes the scope and goals of the ISSC (e.g., purpose, organization, history); explicates ISSC pedagogy and methods (e.g. shared knowledge production, meeting and documentation structure, glossary); defines central terms (embodiment, somatic communication); and provides scores for training somatic communication and attention skills in improvisational group settings. Initially Nita authored the entire manual. In 2020, she reworked it with former co-director Defne Erdur. Then, there are specific training protocols and exercises for local and virtual CoLaboratories that have weekly tasks and organizational structures that fit the relevant Co-Laboratories. These are again authored by Nita and edited by members and supporters of the ISSC (e.g., Joe Dumit, Defne Erdur or myself).

From what I have observed and learned in conversation with CoLab members, all CoLabs follow Nita's protocol for how to run a CoLab meeting (procedure as described in the Seattle CoLab meeting in the previous chapter). However, it is somewhat difficult to employ the research scores that Nita describes in the manual without Nita's physical presence. The problem is that her language is idiosyncratic, and the dancers are unsure as to whether they do things "right." In addition, most dancers don't have time to prepare for a CoLab meeting by going

through a whole chapter of text in the manual. CoLab meeting and research is not remunerated and while local CoLabs apply for arts funding from their respective cities and districts, these applications are often unsuccessful as their projects are deemed to "sciency" for arts funding yet would not qualify as scientific enough for social or natural science funding.

In the Berlin CoLab, the CoLab directors and myself as research assistant were responsible to prepare the research sessions by reading through the relevant text parts of the manual and presenting the information in an abbreviated format to CoLab members present. If the time allowed, we would also take time as a group and read through a relevant section together, e.g., a specific score that trains somatic communication skills, and then put the score to action as our research score. In the virtual CoLab I attended; dancers who had prepared extensively would share summaries of what they had learned with dancers that came in less prepared. If Nita is present in the CoLab, either virtually or in person, she will usually summarize the task at hand in her own words.

The central tools for ISSC research in improvised dance scores are the bodyminds of the participating dancers. Instead of abstracting themselves from the equation of the experiment and looking on from the outside, dance researchers actively use their bodyminds to conduct research. Similar to W. H. R. Rivers foundational description of anthropology as a field science with the anthropologist's vital body as a reliable measuring instrument (Kucklick 2011, 19), ISSC dance researchers understand their trained bodyminds as the most direct pathway to and recorder of experience and understanding. Important here, again, like the anthropologist in the field, is, that experiences of oneself and others are apprehended multi-sensorially–although anthropologists often claim retroactively that they understand phenomenal experience of informants primarily through verbal reports (Rothfield 2005: 48).

In the tradition of phenomenological anthropologists like Robert Desjarlais or Michael Jackson, the dancer's bodyminds may be understood as tools for research (Csordas 1990: 149). Desjarlais and Jackson were interested in apprehending their informants beyond information gleaned through verbal exchanges, implicitly and explicitly learning the corporeal and kinesthetic sensibilities of their interlocutors, and using this experience as valid ethnographic information. The dancers, on the other hand, do not solely aim to learn from interlocutors, which in this case would be fellow dancers, but by holding the mirror up to their own entrained patterns of attention, first understanding and then changing them. Variety in experience of attention in a group is helpful for this and differences in understanding attention are thus appreciated. The bodymind of a dancer is not just an experiencing instrument, it is "a filter of data and the means of its revelation" at the same time (Rothfield 2005: 48). Of course, one's bodymind is certainly not an objective filter but already imbricated in habitual and normative patterns. For the dancers, this is a given since all their research begins from individual phenomenal experience which they know differs individually in time and space, as well as in comparison to other people's experiences.

Figure 7: Photo of ISSC Berlin members engaged in a research score. Copyright: Anne-Sophie Reichert.

Figure 8: Photo of ISSC Berlin members engaged in a research score. Copyright: Anne-Sophie Reichert.

As the ISSC was growing and working on its organizational structure, trying to secure funding locally and for the whole institution, Covid-19 hit. Members of the ISSC were not able anymore to meet in their local CoLaboratories due to hygiene and safety measures. International meetings and methods workshops that had been planned at previous meetings, where members of different international CoLaboratories had come together, were put on ice. The Berlin CoLab of which I was a part stopped working in lockdown and it doesn't yet look like as if it will start up again.

Below actors on the food chain of the arts, dancers are poorly paid and often live below or just above the existential minimum in ordinary times. With the onset of Covid 19, many members of the ISSC CoLaboratories had to focus on teaching online classes to make ends meet. Although there was still dedication and interest, there were not many resources left to organize the ongoing of the ISSC under Covid 19. As I am writing these lines in Winter 2022 only one out of seven CoLaboratories is actively running in person. However, with life moving onto Zoom,

Nita was quick to come up with the idea for a virtual CoLaboratory that would run over several weeks. The upshot of such a virtual CoLab would be that Nita could attend and facilitate explanation of the research scores in the manual. Nita developed an extensive multiple week research protocol for the virtual CoLab in which the group would work their way through the whole ISSC manual step-by-step (Appendix).

Perched on an old office chair in the basement "business center" of a hotel on the Chalkidiki peninsula in Greece, I attend the first meeting of our 6-week virtual CoLab in September 2020 as lab director. This means that I communicate with all participants, set the agenda for our meetings, and moderate our Zoom meetings. This also entails that I comment on the weekly writings of CoLab members. I say "our" because Nita and I have been in communication for the past several weeks, tweaking the program for the CoLab, revising the manual, drafting invitation letters, and setting the agenda. Participants were excited to come together and finally get back to dance research.

There is Defne, living in Lyon but in Istanbul visiting her mother as we begin the CoLab. Defne is a trained dancer and sociologist, working as a dance educator, dance researcher and body therapist, and has been foundational to building up the structure and form of the ISSC. There is Sylvia, a professional dancer and dance teacher at Bath Spa University, originally from Brazil but now based in Bristol in the UK. Sylvia organized the ISSC CoLaboratory in Bristol that consists of around seven dancers that meet regularly to engage in dance research practice. Next up is Nina, a dancer and member of the Copenhagen ISSC CoLab, that has had to forestall its proper start-up again and again because of Covid. She is currently in a car, driving home from Sweden to Denmark, joining us through the Zoom app on her phone. She joins the lab aiming to find a way to combine her academic work in psychology with her body work and dance practice,

which have run in parallel so far, but she hasn't found a way of bringing them together, although she has a hunch that there are possibilities for that. There is Florence, a dancer and school teacher based in the countryside in France, who has started up an ISSC CoLab with a few dancers last year after Nita came to Lyon for a long initial meeting. Next to introduce herself is Cathale, a singer who has become interested in CI and especially in Nita's practice of CI as it felt very close to what she was experiencing and researching in her singing practice. Cathale is a member of the France CoLab as well and has a background as a chemical engineer. She's joined the CoLab because she is curious to see how and what other people in different countries are researching and thinking. Then there is Molly, a professional dancer and organizer of the Copenhagen CoLab which she initiated because it became too stressful to travel all the way to join the Hamburg CoLab meetings. She has just started her BA in Anthropology and is trying to make sense of a day-to-day where you have to sit so much and read and be still. But she is excited in learning about research practice and finding words and theories to make sense of dance research. Joining us from Ohlone territory, Santa Cruz, California is Kevin, who has been working with Nita for a long time and was part of one of her first research CoLabs. He has just finished his PhD in Performance Studies at UC Davis with a dissertation on scoring as a method to learn about fascia. He is also a cranio-sacral therapist and hunter and has been involved in a long-term collaboration with a settler indigenous group in Canada, attuning him to the culturally specific practices of attention. He is here because he is especially interested in how descriptive practices shape our ways of attending. There is Joe, who has danced and participated in the CI community for twelve years, often with Nita and Kevin. He is a professor of Anthropology and STS at UC Davis in California and joins the CoLab as he is interested in the translations between writing and moving, writing as body mind practice, research as movement practice. He passes on

to Kerstin, who just finished her PhD in Auckland, New Zealand with a dissertation of fascia research and has now relocated back to her hometown Vienna. She is a dancer and dance teacher, somatic movement and myoreflex therapist and is excited to finally be able to join a CoLab. It has been difficult to keep up with the work of the ISSC from New Zealand. Finally, there is Jenny who joins from Berlin, Germany. She is a CI dancer and member of the Berlin ISSC CoLab. She teaches pilates for a living and has an academic background in music movement education which got her to appreciate the research-oriented practice of the ISSC, the aim to put words to movement experience and to be precise about this. Jenny has been diagnosed as neurodivergent which leads her to be interested in understanding varieties rather than generalities of attention.

The CoLab's topic to be researched was set by Nita to be the speed of attention. This, at least, was the meta-question from which further questions were invited. Nita was adamant about not defining what the speed of attention is, to leave room for this theme to be a research question that could be answered in various ways, individually and collectively by CoLab members. As a strategy this seemed important: Nita was not interested in teaching what attention is but keen to hear how others practiced and experienced attention. Or, her aim might have been and continues to be to understand different attentional ecologies as they are practiced (particular structures of perceiver-environment systems as Corwin and Erickson-Davis would say (2020)) and how these enable and constrain possibilities of action and perception. CoLab members engaged in daily individual physicalmental movement research guided by a detailed research protocol and the reading of relevant sections for each week's topic of the ISSC manual.

The idea was to begin with the readings and then move. The reading sought to provide a shared vocabulary and a shared practice that could be referred to as CoLab members exchanged

what they had done and experienced tracking their attention. The reading and research protocols were structured around weekly themes which build on each other. Each week had specific readings, specific scores to take the themes of the reading into movement and then research questions that could guide one's inquiry. To give you an example, here is the work for week two (all developed by Little):

Week 2 Sections from the ISSC Manual to be studied:

1. The ISSC Understanding of Embodiment which includes:

- The Singular and Multiple Self
- Propositions in the Formation of Embodiment
- How We Build Communicative Skills

2. The Foundational Somatic Communication Skills (FSCS) section. Skills to be developed include:

- Feel/See Embodied Attention
- Synesthesia
- Diffuse and Specific Attention

Week 2 Score:

Your research durations remain the same as our previous week [20-30 mins on 5 days]. Please add time if you need it. As with last week, practice an open score noticing the speed of your attention while engaged in a daily activity. Endeavor to remain in the present moment. 2. Practice the meditation score to study the research questions. Be sure to notice or include synesthetic embodied attention and diffuse and specific attention. 3. Please add a study session to simply observe and see/feel embodied attention in those around you, or, if that is not possible, then with your buddy online, this should not be within a drama but must be someone's actual and authentic behaviour. It can be brief. Ask yourself how that person is engaging in the physicality of their attention? How much of their physical being is activated and present?

Week 2 Research Questions:

A. Please review the following research questions from week one:

- Can you describe your experience of moving at the speed of your attention? Are there variations that you notice? If so, what are they, and how do you accomplish them? (Requires interviewing). When you interview your buddy, please note the

questions you ask, the prepositions you use, and the assumptions that are implied in your line of questioning.
- Engage anew with last week's questions with the new information you now have. Has anything changed? This is intended to be a moment of brief observation. How do you know when you are moving at the speed of your attention? What are your guideposts? Can you name them?

B. There are more research questions than you may be able to work with in your scores. Please review these and choose questions to engage with that most interest you within the scores that you are practicing-

- How does the environment influence the speed of your attention? Do you notice your attention being "drawn" or "called" by your environment? Is there an inward (inward environment) or outward action (outward environment) to your attention? If so, can you remain physical when your attention is called or is it a distraction?
- How do you remain relational and within the dance while meeting different environmental shifts or demands? Do you change the speed or your attention or other attentional attribute?
- Is there a shift of any other order that you notice? If so, what is it? An example could be noticing that you change the scale of your attentional inquiry. What happens to the speed of your attention when you change scale? Please add your own research question.

As you can see, the individual work to read, the skills to develop, and the score and questions to engage in were many. All CoLab members felt overwhelmed and in week two and three, depending on the CoLab members, a kind of cherry-picking began, where CoLab participants simply focused on one or two things (either a skill, a score, or a question) that interested them.

In addition, CoLab members teamed up in duos (buddy-teams) with whom they met once weekly to discuss their findings and to interview each other.[23] CoLab members submitted reports

[23] The interviewing process between the buddies was guided by micro-phenomenological interview technique. Being formed out of explication interviews and techniques from neuro-linguistic programming, micro-phenomenology is an interview technique that helps to reconstruct phenomenal experience by putting the interviewee back into an experienced situation and then following them with questions as they recount their experience. The idea is to focus on one slice of experience with a definite beginning and end that is exemplary of theoretical ideas one is interested in or that stands out in some way and then to find out about it as much as you can. Below is an excerpt of the interview guidelines Nita set up (Nita is a trained and established NLP practitioner):

on their research findings, interview results, scribbles, images, notes, pictures or whatever they were interested in sharing to share to a shared google docs folder. Members got inspired by the forms that other people's writings and drawing images took. There were many ways of representing one's experience for others and to witness this variety was reported as an enrichment and a relief. Every member read every other member's writing and was able to comment on the writing before a weekly meeting of the whole CoLab.

As we began to dive into the CoLab work, it became clear that much of the actual physical research happened individually or in the buddy teams that were in the same locations, and the online meetings functioned to troubleshoot and to exchange experiences, as well as to ask questions about other people's writings and drawing and images.[24]

Let's look at the process of CoLab members paying attention to their attention and what they were finding out. Sylvia, for example, chose to do her research for the above prompts on a bike ride from her home to the Buddhist center in Bristol. Sylvia wrote up her week's research in the following (emphasis by Sylvia):

> During the bike ride which lasted around 16 min, I noticed a continual dialogue between an internal attention and an external attention. Internal, in this experience,

1. Use the words and phrases your partner uses to answer your questions in your framing of new questions for them. Use these words exactly as you hear them. Do not replace the words you hear with your own new words.
2. It may help you to take notes as you listen to your partner to have linguistic and experiential precision.
3. Make sure you understand the words and the experiences your partner describes. Are you clear? Ask questions until you are.
4. Ask further questions that lead your partner deeper into their experience, their definitions, their ideas. Notice how your frame your questions and the nature of the answer they return. "Why" questions tend to be broad and undifferentiated. "what", "when", "how", "where" tend to give far more specific answers. *The point is to get beneath any assumed experience or action/reaction/response/communion. Take apart any assumptions or generalizations you hear by asking further questions.* Ask until you are satisfied you (and the interviewee) know something essential to the moment" (Little 2020, emphasis mine).

I am sharing these guidelines to provide insight into what the interview process between buddies looked like, who were excited to be learning and practicing a method that had the potential to put words to their research experience in dance.

[24] In the first weeks, there were a lot of questions in our virtual meeting about how to get the interviewing right and how to attend to one's attention without getting lost in theorizing about it already, thus leaving the immediate experience one was attending to. One solution to deal with the latter problem was to write in the present tense a sort of experiential protocol to which one can come back, putting oneself back into the experience and answering questions about the experience by re-living the experience.

were the moments where I was connected to the noticing of my body in relation to the bike itself, the weight/shape of my seat bones against the saddle, the weight of my upper body spreading through my arms and how much pressure was in my wrists and handles. These internal attentional aspects of the ride kept me interested in noticing a soft/low tone with a continual flow between the body parts and the bike and a more relaxed way of being in the ride. Here I also want to include another layer of this body felt experience, where the sensations of the cold air touching my skin (face and hands) where inviting me, somehow, to open to the outside "world." The external attentional elements were coming via my sight and hearing and creating an attentional field which was vital to safely navigate the city while cycling. I was reading how fast/slow cars were, how pedestrians were behaving, traffic lights, etc… Within this attentional modality there was a higher tone, a sense of expansion […]
I became curious about this constant dialogue of internal/external attention, where I could modulate the speed of my attention depending on what was the demand from the outside world; if I was in a quiet street, with no traffic, I could give more attention to my own environment in contrast to when I was in between two cars in a busy junction. Seems all very obvious but noticing what was required from my attention depending on the situation in place, was a fascinating attentional dance of tonal shifts. Sometime into the ride, I realized that there was a "third" attentional space, which I am calling organizational attention, the moment where there was some anticipation in relation to the next action, the action to come, the pre-action, in which I experienced briefly the transition of tonus, perhaps a pre-high tonus? Those were moments where the traffic light was changing and a certain physical response was required from me, either a break and a stop or a prepare to go type of actions. While being interviewed by Kevin, it became apparent to me the connection between attention and tone and I tracked back my body moving from one tonality to another. […]
I wonder if these changes in attention/tonus can be perceived/read by drivers, other cyclists and pedestrians and how they would impact their actions while navigating the city. (Sylvia, ISSC VColab Week 2 Report).

Kevin, Sylvia's research buddy, chose to research his attention walking home on a trail and left the following reflection in their shared google drive folder:

Kevin was walking through the woods in northern Ontario Canada. He is on/with a trail. Algonquin Territory. It is fall. The leaves are all changing colour. Pine needles, deciduous leaves and twigs cover the ground due to the changing seasons and the fall wind storms. The sweet smell of decaying leaves permeates the cool crisp air.

On walking, attending from the gooey fascial matrix: feeling into the multiplicity of the tones coming in from the ground and then distributing these tones throughout the gooey matrix

What's interesting is as I step, the particular tone [that] comes in[to] my body is distributed and then also returns to the ground and the ground changes in response the feet are the relational matrix to the ground, the interface where outside and inside intra-act.

It changes the feeling from walking on the ground to walking with the ground

It's almost like the hardness of the ground changes

I can feel into the micro-movements adjustments and spreading out of my own weight into the ground.

the micro-adjustments and spreading of multiple tones is happening both in my [feet] and in the ground at the same time, a kind of becoming together

The playing and adjusting and shifting in response to multiple tones happens throughout my body and the ground- a kind of ground-bodying

I became enthralled by my feeling into the gooey micro-adjustments in me and the gooey micro adjustments in the ground- when I initially started, I felt as only one solid tone of the ground and I felt like I was pushing off of the ground.

I could feel my body expanding through the ground and the ground expanding through the me through a kind of listening and adjusting across the human-ground interface.

This boundary between the two was dissolved in a sense.

[…]

When I was moving through or moving on the ground, I could not track this so well.

When I unhooked my attention from my visual field and hooked it into my distributed goo, I was able to feel into this distributed gooey mind.

The visual field did not go away it just became one place to notice from among many others- not so foregrounded. The visual field became an equal potential for sensing among many others. This unhooking from attending from the visual field allowed me to move from moving on to sensing a moving with.

[…] It feels like the boundaries of the five senses blur into each and all support this felt sense of balancing as a kind of moving with and being moved by the ground

[…] When attention was hooked into the visual field I was tracking just one speed and when I unhooked from this field and re-hooked it into my gooey body I was tracking a multiplicity of speeds. Hooking into the visual field I feel much more frontal, this experience of attention, tracking to the front, like I had horse blinders on, much more

> kind of predatory, focused, less a prey mode of attending, meaning attending to a multiplicity of bodies- human and other than human and attending to every shift in the herd…(Kevin Connor, ISSC VColab Week 2 Report).

Note here Kevin's manner of notating himself first from the outside ("Kevin was walking through the woods […] on a trail") and as he begins to attend to his attention as distributed throughout his body, which he describes as gooey fascial matrix, rendering the perception of being bodily plastic, he switches to the first person ([…] attending from the gooey fascial matrix […] I step"). It seems as if his research begins only as he is "tuning in" to being present attentional and physically as if before he was "just walking", actively choosing a beginning point for his phenomenological first-person inquiry. Sylvia begins in first-person yet makes explicit how her bike ride is a research situation with a beginning (start of the ride) and end (arriving at the Buddhist center). Both Kevin and Sylvia chose ordinary situations of their everyday life and then committed to experiencing them not through an everyday functional modality (riding or walking from A to B) but as an opportunity to use as a research score on attention.

As prompted by the week's research questions in the ISSC manual, both Sylvia and Kevin interrogated the practice and patterning of their attention in relation to their environment and both perceived a feedback loop between paying attention to their attention and a shifting relation between them as subjects within their environments up to a point where their attentional shifts seemed to influence a shift in the boundaries of their personhood. We can recall here Yves Citton's definition of an ecology of attention: of attentional patterns shaped by our environments and our attentional patterns shaping our environments through circular feedback (Citton 2017). Attention might be described here as a "limit point where contrast between 'the active' and 'the passive' breaks down—to attend to something as a moment where one is acted upon and acting at the same time" (Pedersen at al. 2021: 318).

Despite the similarities of Kevin's and Sylvia's research scores, which point to a potential shared pattern of the organization of attention, their experiences are idiosyncratic, and one begins to understand why a cognitive scientist doesn't want to give a dancer agency in crafting an experiment: it seems too personal to be standardized. How could these observations be categorized, indexed, generalized, or even repeated? And would that even be useful? Isn't the complexity of their experiences where we'll learn about the detailed varieties of attention? Natural scientific and psychological attention researchers have called for more experiments in less controlled settings because it is here rather than in controlled settings that one can understand the situation-specific patterning and adjustments of attention unfolding. Yet if one studies attention through improvisational individual or collective phenomenal experience and its verbalization, imploding attention rather than simplifying it, it can feel like losing rather than establishing ground. This is an obstacle that the dancers face as they try to distill findings from their work. It points to the limits and the potential of dance research.

The limitation for the dancers here presents itself in the form of an implicit standard for research. Although the dancers themselves know that their research differs from natural scientific research, and this is reflected in how their work is funded and publicized, namely, by arts organizations, natural science implicitly remains the frame of reference and benchmark for one's findings. Within this context, their findings appear messy or too personal.[25] However, in other realms of human experience, for example in literature, a personal experience holds truth precisely because of its deeply idiosyncratic character. Novelists will say something along the lines of: "The more specific I made my characters, the more universally people could relate to

[25] This essentializes the dichotomy of art and science, with artistic knowledge described through "negative" counterparts of scientific knowledge, e.g., non-verbal versus verbal, embodied versus cognitive, irrational versus rational (Kleinschmidt 2016: 100).

them."[26] This points us to the potential of dance research: it allows for inquiry to be personal, diverse and exploratory rather than built and repeated on standardized concepts, procedure and equipment which claim objectivity.

Findings emerging from such artistic research are not necessarily good for standardization, but they are relatable and exciting precisely because of their distinct density. In that sense, they provide strong, particular, and experientially grounded facts that contrast standardized natural scientific attention research and might be able to enrich or complicate the latter.

Attention is a Practice

If natural or social scientific research on attention, ultimately, results in journal articles, academic or popular science books—what would be a comparable output of dance researchers? Written output like Nita's dissertation or published articles are a rare occasion for dancer's research and Nita recounts that it took her years to adjust to the genre of academic writing. Writing is not the dancer's primary medium; their media are moving bodyminds. So where do we look for their results?

If a cosmology consists of a perceptual and a conceptual scheme (Kuriyama, in conversation), the dancers do not conceptualize their research results as intervening on the conceptual scheme (providing an interpretive outlook on the world) but as intervening on the perceptual scheme (changing one's way of perceiving and thus of being in the world). The dancer's theoretical presupposition reflects a kind of realism that has been discussed with renewed interest since the ontological turn in Anthropology. For the dancers, and the ontologists

[26] Thanks, once again, to William Mazzarella for pointing this out to me.

alike, there are not different conceptual representations and interpretations of one common (naturalized) world out there which operates according to natural laws. There is no difference between what things appear to be and what they really are (comp. to Corwin & Erickson-Davis 2020: 174). Rather, sensory perception is our primary gateway to worldmaking and training perception consequently shapes the worlds we engender. Not ideas but interactive perception generate reality. Thus, the kind and quality of perception as a practice defines the kind and qualities of what one perceives and what is. One can compare this approach to a Gibsonian ecological theory of perception where one's environment is "a structure that emerges as a result of interaction with the perceiver in constant, mutually constraining reciprocity […] (Corwin & Erickson Davis 2020: 174). Consciously changing and training a perceptual scheme, e.g., one's attention, allows for altering the reality that is consequently perceived. This is what the dancers aim for, I believe. If one's way of attending shapes who one is, and one can take agency in shaping one's ability to attend, the question can be: What forms of attention would we like to have, and how can we train to get them (Little/Dumit 2020)? To make it clear, the reshaping proposed here doesn't pertain to one's ability to interpret the world differently but to one's perceptual grasp of the world (Little 2014: 192).

There is another dimension to add here: a way of perceiving and thus of experiencing the world in dynamic interaction "can structure the realities of others as far as agents have the power to bring the shared, material reality into correspondence with their own imaginary visions of the world (West, cited from Corwin & Erickson-Davis 2020: 172). In this sense, teaching a specific attentional mode and its concomitant patterns of movement invites students to perceive reality differently and anew. These learned practices of attending become more skillful as they are practiced and with them the concomitant reality gains salience. The anthropologists Julia

Cassaniti and Tanya Luhrmann have described such enskillment as a kind of kindling. "They suggest that the ways people are socialized [in this case, trained] enable individuals to focus on certain stimuli or sensations (and not others) and imbue them with meaning. Over time and repetition, one's threshold for experiencing and identifying a particular sensation lowers. […] Like any practice, they suggest that the more one does it, the easier it comes, as the connections between trigger and response are kindled into place" (Cassaniti and Luhrmann, cited from Corwin and Erickson-Davis: 2020: 172).

I have been asked before why dance researchers seem to be uninterested in an intervention on the conceptual scheme. Why don't they produce articles, books, podcasts or exhibitions on attention based on their findings, which despite idiosyncrasy could be possible? I have found a first answer to this question going back to classical phenomenologist Maurice Merleau-Ponty through the work of feminist theorist Iris Marion Young who began to describe the gendered difference of lived experience many years before gender-specific body techniques such as manspreading became a concern in academic and public discourse. In Merleau-Ponty's seminal *Phenomenology of Perception*, subjectivity is not located in mind or consciousness but in lived embodiment (Merleau-Ponty, cited in Young 2005: 28). Intentionality, that which makes a subject an agent, specifically, is located in motility; "the possibilities that are opened up in the world depend on the mode and limits of the bodily "I can" (Young 2005: 36).[25] For dance researchers then, whose medium is reflexive motility in collectivity, an intervention on one's bodymind in its dynamic environment is meaning-making, is value-creating, is generative already. In the words of anthropologist Jaida Kim Samudra: "Those involved in kinesthetic practices discover […] that one can be *a fully conscious actor* in the body without necessarily encoding the meaning of one's action into words" (Samudra 2008: 666, emphasis mine). What is

experienced, explored and learned in physicalmental research in the studio is shared in teaching, yet teaching and trying out might lead to a further development and alteration (Little 2014: 51).

I hesitate here to call the dancer's fruits of labor embodied knowledge since it doesn't fully capture the intersubjective nature of the research process and its insights (Csordas 1993: 147) and the term muddies the waters rather than clarifying what is at stake.[26] With practice theorists, we might think of the dancer's results as individually and collectively experienced patterned and skilled bodymind techniques and schema (Mauss 1935, Casey 1998, see chapter 4 as well) as well as propositional hypotheses, embodied in physicalmental scores, e.g. "If I tune out of visual attention, is is easier for me to tune into a somatic mode of collective intercorporeal attention." These techniques and hypotheses are emergent in and passed on between bodyminds, being tweaked as they are probed. Their location of origin is reflexive mindbody practice in motion. My hunch is that moving bodyminds as media are much more appealing to dancers because for them, being expert movers rather than expert writers, they appear more dynamic, detailed, and faster than thinking and understanding represented and mediated by written or spoken language. This might be due to a combination of professional dance training and an early or innate predilection for movement as an exploratory, conceptual and expressive tool.[27] Many dancers have described to me the situation of feeling at loss for words, but being perfectly able to take a mood, an emotion or a thought into movement.[28] If we consider expressing, acting and proposing through a dynamic individual and shared perceptual-tactile lens—what would it look like? Thinking would be indistinguishable from action, with some dancers calling what they do "not thinking", "physical thinking" or "tactile intelligence", referring to a situation in which action is motivated by tuning into perceptual and interoceptive flows and feedback rather than by language-based thought that is a result of perception (as in the sandwich theory of mind:

perception-cognition-action).[29] Phenomenological philosopher of dance Maxine Sheets-Johnstone argues that the experience of moving-thinking is non-symbolic yet nevertheless rational (Sheets-Johnstone 2011, 426-427).[30] This type of tactile intelligence might be compared to the bodymind technique of highly skilled practices such as sailing, figure skating or wood carving. Yet what differentiates dance research practice is that the practice is held intentionally exploratory—on the hunt for new and unexpected research findings.

Nevertheless, given the opportunity to verbalize and structure their movement research experiences through writing and especially through micro-phenomenological interviews excited and interested many of the dancers participating in the CoLabs I attended. A motivation here was to make an individual experience accessible for others and to compare it to experiences of others, seeing whether other had experienced similarly. There was also the urge to put words to what had been experienced as a shared motif, mood or atmosphere or even a shared perception. The desire to represent and explore one's experience verbally illustrates the complementarity of textuality and bodymind practice: individual or collective experience can be agentive and meaningful and so can a text contextualizing the experience in historical and cultural analysis (Csordas 1993: 137).

Attention can be shared

As might be obvious already, solo dancing is rare and usually dancers move in duos, trios, or ensembles in the tradition of CI. How then does training, using, and playing with one's attentional skills work in a setting constituted by several dancers? Nita would describe an ensemble situation as an attentional web, created by dancers moving together in space (Little 2014: 205). This web is made up of attentional capacity stretching beyond individuals—e.g. I

can cast my attention into my fellow dancers' torsos as I wrap around them while my wrapping around might be informed by my fellow dancer casting their attention to afford the wrapping. In other words, my movements are the result of an attentional dynamic rather than my individual creative agency.

Phenomenological philosopher and psychologist Thomas Fuchs describes this phenomenon as follows: "lived bodies become extended such that they are intertwined with those of others in a way that prevents any conceptual or ontological reduction to isolated entities" (Fuchs 2017: 16). A discussion of the Seattle ISSC Co-Laboratory, and that I have described in the beginning of the chapter, illustrates such a shared sense of attention. In the debrief after the research score a dancer said: "Attending to my patterns of attention comes with a feeling of extending into the space that surrounds me and *into* others [the other dancers on the floor] [emphasis mine]. [It feels like as if] …others and I are made through shared attention." In this description, attending to one's individual pattern of attention allows one to synchronize and extend one's attention, resulting in the perception of one attention shared by many dancers. They [the dancer reporting] perceive themselves as "made" by this shared sense of attention.

The idea of attention as a collectively shared web that is generative of a dance improvisation contradicts classical phenomenological, cognitive science, psychological and economic research that commonly limit attention to individual and separate human mind and brains (Pedersen et al. 2021: 312). According to classical phenomenological accounts, one's knowledge is built on sensory perception and kinetic and kinesthetic self-discovery as one develops. It is only based on this self-oriented exploration that intercorporeal attunement takes place (Sheets-Johnstone 2011: 221, see also 446). But what if we never attend in isolation but as

Citton (2017) and Csordas (1993) and the ISSC suggest, are made through shared attentional ecologies of human perceiver and their intersubjective human and non-human milieux?

In line with recent research by psychologists and gesture scholars, intercorporeality might be a fruitful conceptual tool to tackle this question. *Intercorporéité* was Merleau-Ponty's answer to Husserl's intersubjectivity, which, for Merleau-Ponty, centered too heavily on the ego and neglected the role of the body (Merleau-Ponty [1960] 2008, see also Meyer, Streeck and Jordan 2017: xviii). As illustrated in the touching hands example, the basic idea is that one can only become self and experience oneself through the experience of an Other. Intercorporeal experience constitutes a corporeal subjectivity: "Intercorporeality is a radical and coherent conception of the human body as being constituted by its corporeal relations and interactions with other human or animate bodies— a conception, that is, in which the body is never alone in the first place, or only in conditions of deprivation that we recognize as inhumane" (Meyer, Streeck & Jordan 2017: xviii).[27] The concept of intercorporeality entails embodied interaffectivity, too. Here, emotions are not conceived of as inner mental states of individuals but are described as "encompassing spatial phenomena that connect the embodied subject and the situation with its affective affordances in a circular interaction. […] In every face-to-face encounter, the partners' subject- bodies are intertwined in a process of bodily resonance, coordinated interaction, and 'mutual incorporation' which provides the basis for an intuitive empathic understanding" (Fuchs 2017: 4).

From an intercorporeal perspective, one can conceive of an attentional web between dancers as an act in which individual tactile and intentional attention is partially decentered as

[27] Intercorporeality can be researched empirically. The anthropologist Charles Goodwin, for example, conducted experiments that showed how verbal utterances uttered in the presence of others are not productions by individual speakers but are results of ongoing interaction in which the tracking of eye movements of involved speakers is central (Goodwin 1979).

one adopts to the situation in favor of bidirectional and interactive attention in movement (comp. to Fuchs and de Jaegher 2009: 476).[28] In the case of the shared attentional web of the ISSC dancers, however, it seems to be the case that individual intentional attention and agency is not decentered, rather it must be learned. If you are a dancer, recount the feeling of being in an ensemble improvisation and feeling like you are in a washing machine, being moved rather than moving, until you have tuned into the scene (this can take years!), and have developed the skills to be fast enough to direct your attention, thus creatively and agentively intervening in the attentional web purposefully. It is up to the individual dancer to reflexively notice how they are partaking in the forming of this net, in the co-creation of shared movements to eventually take a creative lead in influencing the situational dynamic.[29] This is a form of attending to one's attention as one tries to understand how it is that one perceives and thus creates, how one perceives and thus relates. We could think of this as a process of individuating oneself from an attentional shared dynamic to step into one's individual agency with more force, direction, and awareness. Such a move might then transcend the patterning of the joined attentional dynamic.

What I hope to have shown above is that attention must not necessarily be conceptualized as a limited currency or scarce resource as economic and behavioral-psychological studies continue to suggest. Indeed, a structural analysis based on an economic or symbolic framework (in this case capitalism) obscures the existence and understanding of rich, detailed, and compelling phenomenologies that reveal attention to be a practice rather than an object. Attention is not best understood by a metaphysical definition that locates attention in the mind

[28] If you aren't a dancer, just think of a big group situation that you were part of and in which you were trying to take agency in face of the different tempo and direction of the group dynamic.
[29] I define agency as creative here as it is led by imagination and curiosity. Yet these two, imagination and curiosity are not conceptualized as processes of mentally representing or imagining visually but as physicalmental techniques (comp. to Csordas 1993: 148).

(comp. to Allport cited in Wu 2014: 6). Rather, as we have learned by attending to the research practice of ISSC dance researchers, attending is a physicalmental practice. To "implode" attention (Haraway, cited from Schneider 2005), to understand the professional expertise of dance-based attention research, to show attention as a resource that can be trained toward abundance, an anthropological and phenomenological approach has proven useful if not advantageous (Pedersen 2021: 312).

Addendum: Training my Attention

In summer 2017, I participated in a week-long workshop led by the Canadian CI dancer and choreographer Benoit Lachambre. The workshop description had sounded like a research proposal indeed:

> The aim of this workshop is to combine an awareness of corporal energy streams with the interspatial dynamics of fluids. With the participants, Benoît Lachambre focuses on the creation of somatic images and their capacity to generate moving sensorial architectures. He invites participants to examine the choreographic act by simultaneously reducing the stress of the learned roles of dancers and choreographers. He is thus proposing a transformation of models. With kinesthetic awareness, and within a community of shared gestures, Benoît Lachambre works on a deepening of perceptions and feeling. To this end, he places bodies in a state of connectivity and openness, resulting in a dialogue centered on interspatial links and connective tissues. […] Can an empathetic movement be a vector for positive change and for transformations via a meeting/breaking-down of the boundaries of established roles?[1]

In the week to come, I would sometimes curse as to the absence of dance as a performative genre, dance as being nothing else but weird, fun movements. Benoit's class was hard work to say the least. The first thing Benoit did as he arrived on Monday was to take all mirrors out of the dance studio. We then started stretching our feet, establishing a connection from the feet to the back of our heads. The class continued in this vein, paying attention to how one movement in one place incites change in another place in the body.

For example, we were advised to drop our lower jaws and to note in which moment of relaxing the jaw a movement in the shoulders could be detected. In this way, we were warming up and training our kinesthetic awareness, our sense of movement in space and studying the interaction of our mobile muscular, fascial, and osseous systems. We did this work for hours every day and it was tedious. I realized that it was very hard for me to focus all my attention on

[1] https://impulstanz.com/en/workshops/id3369/, last accessed 04/17/2023.

my movement experience—I had very little training in this. My mind would constantly wander off (or out the door as Nita would say) and I had to bring my attention back to my sensing, perceiving, and moving. It was difficult to notice all the small relations and connections between different sense perceptions and movements. If I focused on my sacrum, this incited my attention to follow an internal energy flow up the spine. But then a foot had moved and when did that happen and how was it related to the sacrum?

The scholar in me ached as it became clear that a type of empiricist comprehensiveness of what I was registering was impossible. It was simply too many happenings atop each other. I had had the experience of mind drifting when focusing on movement before and I had always thought that it had to do with a certain thirst of my mind for more than just mere sense perception and movement. Now I realized that the opposite was the case: it was too challenging to attend to this dense and fast process of interacting systems, of moving, hearing, feeling, touching, thinking, dropping, flowing—thus I longed to escape.

As the days went by, I became better at focusing my kinesthetic awareness. It didn't become less messy but somehow, I became more ok with it, the noise became bearable, if you will. And I realized that it was in fact incredible to have a designated time and place to do this work of focusing on one's own inner and outer movings (including interoception, perception, body movement, emotions, thoughts) of bodymind. Yes, I could be on a commuter train or in an academic seminar and at the same time move my left foot and see what change it incites in my upper body anatomy. But the environment of the classroom and the commuter train are not configured to encourage such exploratory, dynamic action. Rather, they are built for a less dynamic, seated or sitting position, for reasons of people management, safety, and efficiency. Attention is solicited differently, yet there is a preference for unidirectional visual attention in

both the classroom (toward the front or toward a screen) and the train (out the window or toward an advertising and announcement screen). I loved what my work yielded. In paying attention to how I employed my perceptual capacities in relating to my moving body, I understood that this can be an open-ended process that I can use creatively.

Let me explain. When I navigate the world outside of this dance workshop, it feels as if my perception and my body movement aim to match my learned expectation of how the world works and what I need to get done for it to work. I sit to work, I drink to cure thirst, I think to systematize, to class, match and compare, I see to evaluate. In other words, it seems that I predominantly comport myself in a functionalist manner to the end of doing useful and expected things. Philosopher of dance Einav Katan-Schmid describes this type of goal-oriented movement has having situated reason within whereas dance doesn't have to have an ordinary goal right away (Katan Schmid 2016: 140). In a sense, I am not using my body as an instrument toward a predefined goal, but I am being inspired, surprised, and even led by newfound physical and perceptual ability. In class as I observed all these happenings within and around my fleshy body moving, I was guided by a sort of open-ended curiosity. I didn't know what to look for or what to find (a sandwich, a bed, a lake, a google doc to write in), and thus I found a million things I hadn't found before.

Practice theorists and phenomenologists alike have ascribed this open-endedness to the existential indeterminacy of human life and practice more broadly in that one's actions always outrun one's conscious intentions" (Merleau-Ponty, cited from Csordas 1993: 151). Yet, specifically, in the dynamic of human creative action and the structural constraints of patterned situations and environments, the learning of a new perceptual schema of attention creates innovative potential. For example, I could shift my focus of attention from the front side of my

body to my back and move as if my back was my front. This looked to an outside onlooker as if I was walking backward. However, I felt I was moving forward (while being aware of moving backward) in the sense that I sensed much more of what was going on behind me rather than what was going on in front of me. My learning from this was that vision played a much smaller role in directing my attention than I had thought. Of course, I don't have eyes on the back of my head. Nevertheless, I was never scared of stumbling or falling as I moved—hearing, listening, smelling, touching and propriocepting helped me to move fast and smoothly.

Chapter 3: The Axis Syllabus: Body Nerds, Biomechanics and Sensational Anatomy

Take a moment to reconsider how you learned how people move. In school, you probably looked at an image of a human skeleton, printed in a biology book. You might have looked at a drawing depicting the most prominent muscles that support your bones. Maybe you were shown an illustration of evolutionary change from quadrupedally moving animals to habitually bipedally moving animals to bipedally moving humans. Maybe that was it. I may be going out on a limb here but you probably learned about human locomotion by moving and using your body. If you can walk today, you likely first learned to crawl, then to pull yourself up, eventually to walk and run. All this might seem predictable in retrospect yet actually took a lot of effort at the time. If you are using a wheelchair or walking aids, you learned how to adapt and synchronize your body movement with these tools (Winance 2006). You learned to move at different speeds, forward, sideways and backwards, to move on horizontal, vertical and diagonal axes and in circles. Maybe you learned how to follow specific patterns and qualities of movement in sport or art practice. Those patterns of movement are what I call kinetic techniques. While you were learning these techniques, you paid attention to them. As you mastered them, conscious attention was most likely directed somewhere else as your techniques became habitual.

To experientially know one's body in movement in a quasi-automatic manner is how most people get by, at least until they hit environmental irregularities (a new home at night, you are trying to find your way to the bathroom without your glasses) or until something is not working anymore as it's supposed to. Then, they suddenly realize that they know very little about their bones and their muscles, their techniques and habits of movement, their myofascial system, the way they distribute weight and load through their body. This is not to say that we never

reflect on how we move or how to move better. It's just that there is very little room outside of professional movement or rehabilitation practice to do this. In other words, there is no designated problem-space for body literacy before our body does not function as expected. Therefore, it is hard to become aware of or remember moments of reflexive body movement in a systematic manner.

The dancers that will guide us through this chapter belong to the Axis Syllabus (AS) community and are self-proclaimed body nerds. Drawing on basic and current natural-scientific research, they push the limits of ordinary education on human movement. They are on a collective autodidactic hunt for rich understandings of human anatomy and locomotion, experientially grounded in exploratory movement research and teaching. Taking cues from practice-oriented rather than performance-focused dance research (Royce Peterson 1977, Hardt 2016, Kleinschmidt 2018), I follow some dancers of the Axis Syllabus community as they explore anatomy, biomechanics, and neurophysiology in dance practice.

The Axis Syllabus fashions itself consciously as a research modality and network which operates referring to scientific references and method. While differences to laboratory studies are acknowledged, the self-representation of the natural sciences is partially emulated and natural scientific research, sometimes explicitly and sometimes implicitly, functions as a benchmark for AS research. It is clear to AS researchers that they are not natural scientists, but it is natural scientists, among others, they look toward for a furthering of their knowledge about the human body in movement. In studying and working with natural scientific theories and models, natural science's propounded objectivity is usually accepted.

From an anthropology of science perspective, the Axis Syllabus can be understood as a social, technical, *and* epistemological system (Latour and Woolgar 1986: 27) and I will analyze

it as such. Based on examining the AS's research, and its tools, processes and outcomes, this chapter shows the normative presuppositions undergirding AS classes and workshops and its similarities as well as differences to forms of scientific research. In contradistinction to static conceptions of human anatomy, based on studying cadavers and expressed in images of two-dimensional skeletons, I propose that a dynamic outlook on anatomy, researched in movement, brings to the fore a similarly dynamic understanding of people and the bodymind techniques that they enact. Beyond dynamic, developing and learning bodyminds, I furthermore propose that the Axis Syllabus engenders an epistemic iteration, a dynamic, adaptive knowledge structure.

Like Contact Improvisation, but a bit younger, the Axis Syllabus is an information and movement analysis and reference system that is hard to pin down, as it is neither finally defined nor trademarked but continuously evolves with the people who engage with it. This creates confusion, not just for the interested researcher but also for beginning Axis Syllabus students who can't get a clear overview of how the community organizes and functions. There are a few pillars to orient us, nevertheless.

US American choreographer, dancer, writer, and researcher Frey Faust initiated the Axis Syllabus system in the late 1990s. The idea in the beginning was, simply, to bring information about the body in movement from anatomy, biology, biomechanics, and physics into the dance community.[1] Professional dancers, like other professional athletes, often have comparatively short careers due to acute and chronic injuries, which Faust claims result from moving one's body wrongly. Learning basic and current research on functional anatomy, physics and biology, the primary goal was to move the body intensely yet without as much strain and injury, making

[1] https://www.youtube.com/watch?v=r0uh6_ogXcY, last accessed on 06/01/2022.

movement more efficient and healthier. In the words of *Moving On Center*, a movement school offering Axis Syllabus classes in Berkeley, California:

> The intention of Axis Syllabus classes is to re-train movement patterns for respectful coherence with our anatomical design, as inherited through thousands of years of evolution. This re-training supports longevity of the body's physical structures while reducing the risk of injury and repetitive strain. Improvisational exercises and choreographed motifs are used to create frames for the study of healthy joint parameters, fascial pulls and pathways through the body, and other phenomen[a] relevant to the moving body. [2]

Considered from a first-person perspective, this goal might be rephrased as gaining expertise and trust in one's own body for training, everyday life, prevention, and rehabilitation, based on information gathered from the natural sciences. While dancers are experts of moving bodies, from Faust's perspective, there is a disconnect between the dancer's aim to perform well and the proper knowledge needed to move one's body in a healthy, sustainable manner. This knowledge is not intuitive but needs to be acquired.

Faust's initial learnings were tried out and refined in dance classes and workshop settings that were run under the name Axis Syllabus from 1997 on. At this time, the AS was primarily thought of as a dance style or specific approach to teaching dancing (Faust 2018: 6). According to Faust himself, this style was met with considerable resistance in the dance community. Dancers were suspicious as to the technical and scientific information that Faust was transferring into the dance world and practice. Faust first had a studio in Marseille. In the early 2000s, Faust and three of his first AS students moved to Brussels and set up daily classes for interested dancers, which developed into a network of AS dancers doing projects together. One of them was Kira Kirsch whom I have worked with for the last few years and who will figure

[2] http://www.movingoncenter.org/disciplines/axis-syllabus/, last accessed on 06/01/2022.

prominently in this chapter. In Brussels, the AS was further developed into a movement system that could be used as a tool for inquiry and could be taught to interested students.

Pedagogical principles of AS teaching were developed at this time as well. For example, it was important to Faust and the first-generation of AS teachers to re-orient students' gaze away from an imitation of the teacher toward their own, felt movement experience. Classes were designed to flow in "rivers" through the studio, from one end of the studio across the dance floor to the other end. Students move in one long line that is constantly in motion. If a student reaches the end wall of a room, they quickly run back to the other side of the room where the line begins and join in again. Students can orient on and along the students before, behind, and next to them (if there are several rivers running in parallel) rather than copying the teacher's movement as they position themselves behind the teacher. In contemporary training, it is custom that students perform newly learned material in small groups in front of other students and the teacher, a moment much feared by students. In contrast, in an AS class, students continually dance together and look at each other for support ("How is she doing it?") rather than with the critical eye of an observer directed at the performer ("Is he doing it right?"). In Brussels, students of all ages and abilities were accepted into classes, breaking with established distinctions between amateur and professional, and age-segmented classes.

In 2004, findings were gathered into the book *The Axis Syllabus*, authored by Faust. The book was written as a reference system and as a manual, explaining and defining movement axes and rotations in proximity to anatomical, biomechanical and physics references yet with idiosyncratic concepts. The audience for the research practice and written output are professional and amateur dancers, somatic practitioners, physiotherapists and principally everybody interested. The training and the written material demand a certain familiarity with anatomical,

biomechanical, and physical principles. Thus, its content is not fully intelligible if one is not familiar with Faust's aporoach and use of these references in movement practice. As AS teacher Diana Thielen frames it: "The book needs to be translated by certified AS teachers who are close to Faust." The proposed principles and ideas become intelligible as they are tried out, first in instructed and later in self-guided dance research. The goal of AS teachers is a first-person mentalphysical understanding, exploration and integration of the ideas proposed rather than success in style.[3] The outcome of this research-oriented learning is judged phenomenally by the learner. In contradistinction, in other genres of professional dance, success is predominantly judged by how harmonious, effortless, and precise a taught movement looks to an outside observer such as the dance teacher.

While members of the Axis Syllabus community understand the AS to be a movement and research system, a specific dance style or an approach to teaching contemporary dance, Faust as of late insists that the name Axis Syllabus refers foremost to the book *The Axis Syllabus*.[4] Yet as Thielen has described above, without expert instruction, the principles laid out are difficult to understand for somebody not familiar with the AS. As I write in July 2022, Faust has just

[3] http://www.movingoncenter.org/disciplines/axis-syllabus/, last accessed on 06/01/2022.

[4] Many members of the Axis Syllabus community are confused or irritated by Faust's recent move to limit the name Axis Syllabus to the book, rather than to the practice and the community at large. They suspect that this move comes at a moment where Faust feels threatened. In 2018, allegations of sexualized abuse of power were levelled against Faust by a certified AS teacher. In addition, Faust has been vocal in denying anthropocentric climate change and Covid vaccines and the respective national and regional requirements to show proof of vaccination to participate in a dance class. This has caused a rift in the AS community with some members supporting him and others who question or reject his position. Anti-vaccination positions are quite widespread in the international dance community and range in degree and argumentation. In Winter 2021, I participated in an Axis Syllabus one-week workshop in Berlin, and a vaccination proof was required by the Berlin Senate to participate. Half of the participants who had registered for the workshop could not participate because of this requirement. While this is a small and local indicator, my observation of the overall contemporary dance community online and in person reveals a similar pattern. Covid denialism is not the topic of this chapter, yet it seems important to note how the pandemic has not only split the community over the topic but has brought assumptions about health and wellbeing to the fore that were already implicitly present. [yes – this is super interesting. Can you write something like an epilogue, maybe, that accounts for the effect of the pandemic on the communities you're discussing, including these issues of anti-vax politics etc.?]

published the 10th edit of the 5th version of the book. The book can be purchased for 25 Euro directly from Faust via the Axis Syllabus Forum homepage and is updated regularly. Once purchased, one can download new editions for free. The book is 54 pages long, beginning with a short history of the AS.

The actual 'syllabus' is divided into two main sections. The first section maps body parts onto three functional groups: motor masses, motion centers (more on these below) and support areas. The second section elaborates on optimal alignment (joint centration) and movement based on physical principles. The two parts differ in illustration. While the first part is illustrated with simplified drawn models of the human body with the functional groups marked with symbols, the second part is illustrated with photographs of people moving. These photographs are then analyzed with mark-ups on the pictures and text below with respect to physical forces present and their impact on movement ability. The photographs in the second section aim to aid in applying physical principles to human movement.

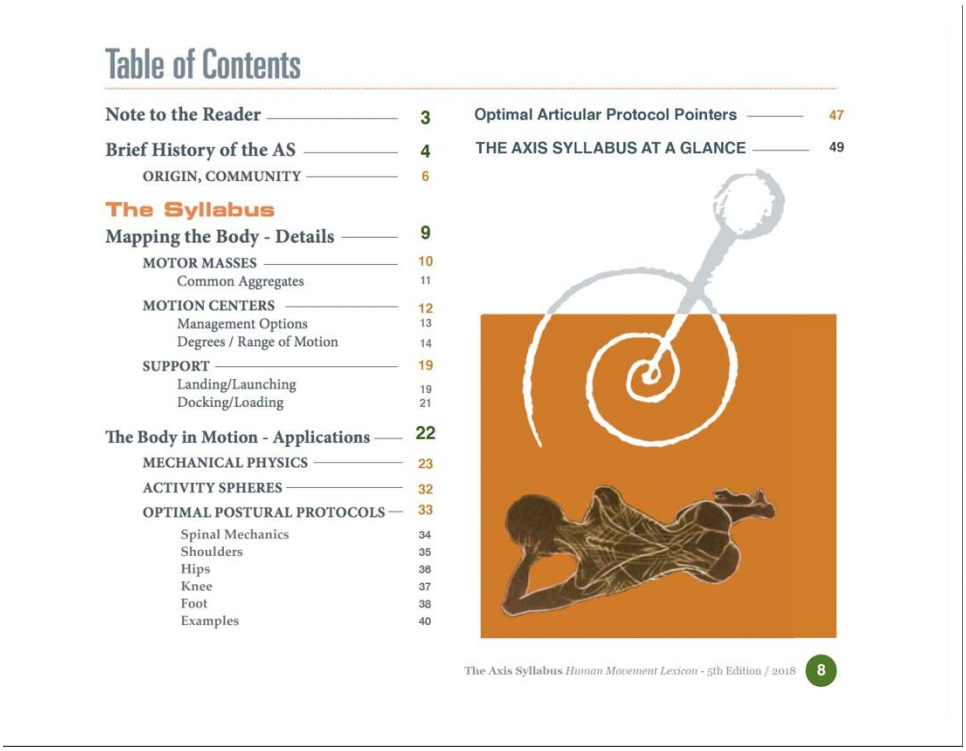

Table of Contents

Figure 9: The Axis Syllabus Book, *Table of Contents*. Copyright: Frey Faust.

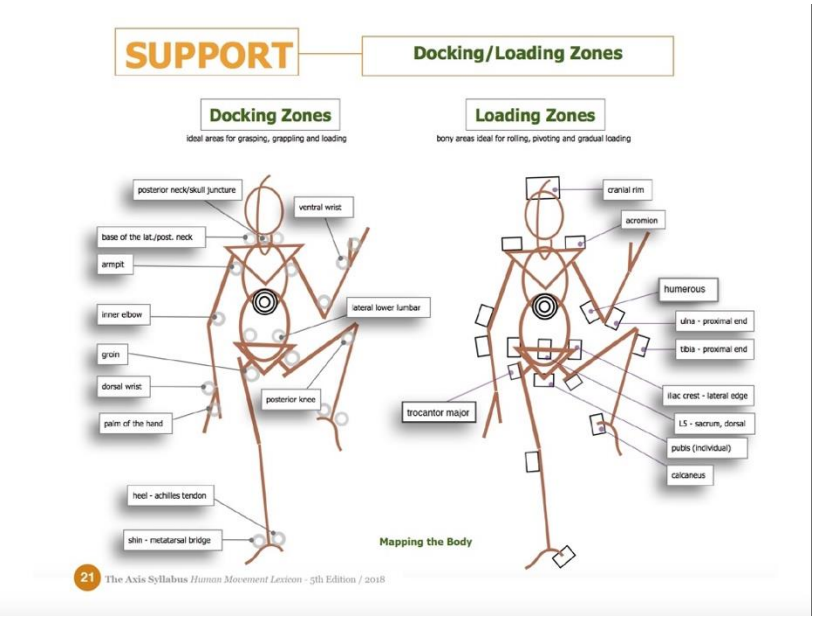

Figure 10: The Axis Syllabus Book, page illustrating AS concept of docking and loading zones. Copyright: Frey Faust.

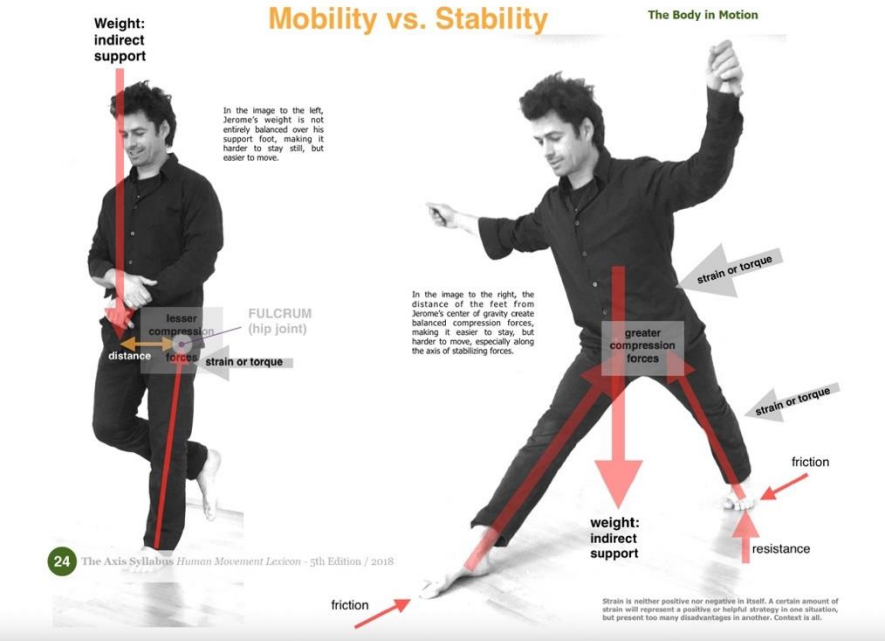

Figure 11: The Axis Syllabus Book, page illustrating AS concepts of mobility and stability. Copyright: Frey Faust.

All throughout the book, information is based on studies from sports medicine, orthopedics, or biomechanics research or on Faust's own discoveries and adaptations of scientific hypotheses. Faust points out where he has discovered discrepancies between his own and scientific findings. Some scientific studies, for example on range of motion (ROM), are conducted on cadavers. Range of motion of a cadaver in rigor mortis will differ from that of a living human. For example, ROM is measured through moving the cadaver's motion centers or limbs passively, thus potentially bypassing a limit that would be uncomfortable or painful for a living human. Actual range of motion, according to Faust, can only be explored in vivo. While one could conduct a similar passive test on a living human, Faust holds that ROM should be measured from a dynamic stance because "evolutionary theory posits that the shape and movement possibilities of a species arise out of action" (Faust 2018: 47).

With every new version of the book, Faust updates scientific references and adapts definitions with the goal of refining the AS approach. As Faust is the only one to re-define the

conceptual structure of the AS, other AS teachers and students must "catch up" with Faust's changes. To facilitate participation in adapting the AS, Faust has created blog posts on the Axis Syllabus forum where AS researchers can contribute scientific resources or own findings on topics presented in the book that update the prevalent information. While there is some discussion on the homepage, AS teachers that I interviewed and that know Faust well had the impression that they had little to no power in re-defining central concepts of the AS syllabus. In parallel to the Axis Syllabus book and with the help of others, Faust has developed a movement notation system for the AS. The latest version, called The *Human Movement Alphabet* has been developed by Faust in collaboration with AS researcher and teacher Manuela Martella.

To AS teachers and dancers with whom I have trained, whom I have interviewed and whom I have observed, the defining feature of the Axis Syllabus is the investigative nature built into the movement principles and process. Comparable to projects of personal science in the quantified-self community, AS students are given a handful of tools and concepts and are encouraged to explore and research their own and other movement patterns and techniques. The aim is, in AS teacher Antoine Ragot's words, to develop a critical eye toward assumed facts about the body and body movement, testing, questioning, and updating scientific information. Working solo and in community, the mover's intellectual and somatic curiosity is nourished as they test and try out ideas in movement.

To gain insight from the process of research, the AS aims to operate like an empiricist science through observation, hypothesis formulation, testing of hypothesis and theory formulation (Faust 2022: 5). This is typically done either in individual research undertaken by AS researchers (students or teachers) or in a class setting. While conscious of their difference from natural scientific research, AS teachers facilitate a research setting in class and underline

the importance of natural scientific facts and descriptive language in contradistinction to parts of the dance community that draw on spiritual, pseudoscientific and metaphysical traditions to conceptually fuel their movement practice. Legible facts in this context are primarily either anatomical, biomechanical, or physical principles concerning human movement or individual and collective phenomenological insight from movement experience.

Faust propagates an emulation of the "didactic dead pan" style of the natural sciences to stay value-neutral, apolitical and to leave individual affective or cognitive reaction and interpretation to students working with the material (Latour and Woolgar 1986: 28). In the words of Faust: "the dry, bio-mechanical, scientific approach to teaching movement skills allows each participant their own [subjective experience] instead of defining their perceptions based on the subjectivity of the facilitator, teacher or therapist."[5]

How "dry" an AS class is depends on the AS teacher that is teaching and there is a considerable degree of variety between teachers. Teachers I have observed recognize the normativity of pedagogy and have adapted classes in this respect, e.g., by prompting students to share their preferred pronouns in the beginning of a class or by providing space for the utterance of individual feelings or collective atmospheres that emerged in movement practice.

Yet, as AS teachers are educated by other AS teachers, there is continuity in style and content of the quasi-objective, scientific teaching style and language use. AS teacher Diana Thielen explained in an interview how the technical language of the AS, which to her mechanizes the body, was beneficial to her in that it created an opportunity to see her moving body as a quasi-technical object, creating distance between her and the emotive and physical expressivity of her movements. She can then use the space created as she intends instead of

[5] https://www.axissyllabusforum.org/educational-philosophy, last accessed 07/15/22.

being one with what she feels and perceives as she moves. I have observed that moving within what is perceived as an experimental rather than an expressive space, liberates dancers from the need to express a deeper layer of meaning or represent a cultural theme with their movement. The AS community is a place, as discussed earlier, that attracts dancers who dance to explore and not to communicate, to perform or to be liked. Their dance practice is not a representation of their perception or another kind of internal process. However, Thielen describes as well how technical language can create distance between teachers and students and does not always mirror students' lived experience in which moving and feeling feel closely intertwined.

A final aim of the AS community is to distribute knowledge about the human body and human movement in an anti-authoritarian style through teaching AS references ("propose rather than impose") and further selected topics as chosen by the respective teacher, e.g., tensegrity in Kira's case. The assumption is that knowledge about the human body in movement, because of its specificity and complexity, is not widely distributed and accessible enough yet is necessary for sustainable, healthy movement.[6] The AS community tries to decentralize and spread this knowledge through teaching AS classes, offering informational resources on its homepage and educating and certifying AS teachers. The assumption is that the more spaces for learning about the body and its movement capacities are provided, the less injury will occur, and the more people can move in an informed manner.[7]

Through educating new AS teachers who then train new students, an international AS community has been developing for the past 20 years with more students joining with every

[6] https://www.axissyllabusforum.org/asrm-representatives, last accessed 07/15/2022

[7] From an anthropology of science perspective, I note here that only one of the four goals of the Axis Syllabus is a classical Baconian scientific goal, the advancement of new knowledge. This parallels observations by other studies of science that, contrary to popular opinion, the advancement of truth or knowledge is only one and often a small part of scientific research (Kuhn 1962, Latour and Woolgar 1986, Chang 2004).

training cycle, summer intensive or workshop. This community consists of certified AS teachers, AS teachers currently in education toward their certification and AS students at various degree of training. These dancers often do not teach or train solely in the Axis Syllabus but in other dance forms as well, following protocols and lineages of specific dance teachers or dance styles. Many AS teachers and practitioners have additional certifications in Body Mind Centering, Yoga, Pilates, Gyrokinesis and Feldenkrais. They are osteopaths, performing artists, physiotherapists, athletes, and acrobats.[8] In my experience, many people joining the AS to explore movement in dance are really body nerds, having studied and researched movement for many years already. Some, however, still come straight out of a traditional dance school whose education left them unsatisfied. Oftentimes, their desire to investigate movement in dance practice is what makes "dancer" their primary marker of identity. Yet of course, within a different context, for example when they market themselves as body workers to earn a living, this facet of their identity takes a backseat. The interdisciplinarity and broad level of education of AS teachers informs AS research on the dance floor. Likewise, leaving an AS class or workshop, students and teachers go out into their other domains of expertise and may employ what they have learned. For example, Nadia[9], a Berlin AS student integrates knowledge and exercises learned in her day job as a Yoga teacher; another one, Lucy[10], tries to apply information she has studied in AS classes in her practice as a physiotherapist.

[8] https://www.movementactivism.com/axis-syllabus, last accessed 06/01/2022.
[9] Name changed.
[10] Name changed.

Scientific Objectivity and Normativity

Axis Syllabus researchers I have talked to operate with the laymen definition of truth as independent from individual subjectivity. Sticky things like feelings or politics may be left at the studio door to not cloud dance research.[11] Objectivity is ensured by following the scientific method which is, similarly to objectivity, understood in a kind of cookie-cutter version. The steps of the scientific method the AS aspires to emulate are rarely made explicit but if so, as, for example, in Faust's book, the assumed order is usually hypothesis, testing and experimentation, analysis and conclusion. This order of the scientific method, the hard realism of the natural sciences and the methods for experimentation and analysis of the respective cited studies are largely taken for granted and thus the AS performs a kind of universal objectivity long contested by philosophers of science (Burtt 1954, Daston and Galison 2010). Importantly, there are teachers such as Kira who point to the fact that it is important to check under which conditions and with which methods and aims a study has been conducted. Yet certainly not all teachers question, contextualize or historize natural scientific theories and models that they teach. Although books and studies are read with care and caution, some AS practitioners lack the interpretive skills (philosophical, sociological, or historical) to critically analyze the scientific findings in context. Especially new students of the AS are preoccupied with understanding the taught principles and don't have capacity or tools to question the information presented.

The main criterion for whether a scientific explanation is accepted as useful toward the aims of the AS is, whether it can be probed in the dance studio in physical exploration. As any

[11] Different AS researchers and teachers have different opinions on the topic and there are AS teachers who are aware of and actively integrate social, political topics into their class content and pedagogy. Yet, compared to other contemporary dance classes in the off-scene, topics such as identity politics are notably absent from the AS syllabus classes in which I participated.

(scientific) practice, the AS carries with it the individual value propositions of its members and the shared norms that bind the AS community. Especially interesting in this regard is what kind of "baggage" the AS implicitly imports from the natural sciences and that cannot be easily probed in the dance studio yet actively influence the dancer's research method. The fields that the AS draws from, such as human biomedicine, biomechanics, and orthopedics, as well as sports medicine and bioanthropology, adhere to and motivate research from an evolutionary outlook, itself influenced by economic theories (e.g. Malthus's influence on Darwin). This outlook reflects the AS's goals of reducing the energy-cost of movement and making movement more efficient toward building optimal alignment and improving longevity. The import of these presuppositions is rarely made explicit yet for a dancer who moves a lot, it intuitively makes sense to organize movement efficiently.

While evolutionary theory and research harbors normative assumptions (Haraway 1989), for example a gendered differentiation into hunters and gatherers or male competition, such assumptions are not made transparent in an AS class. Rather, examples from evolutionary anthropology are pulled to explain anatomy as functional, i.e. adapting to respective ecological niches (e.g. comparing the ability of the pelvis in four footed stands to that of a human standing on two legs). Similarly, it is usually not made explicit that most of the natural scientific studies, from which findings are cited, operate with a male human as object of research and generalize from here on for an entire population. Standardized results based on specific male bodies are assumed to yield results that are applicable across the diverse range of people studying the AS.

And, following natural scientific research, the AS' baseline for movement studies are usually able bodies. For example, Faust's AS monograph relies in its examples on an able-bodied, walking human with full range of movement. Recent research on kinesiology education

has shown how an able-bodied curriculum can perpetuate ableist attitudes (Narasaki-Jara et a. 2021). Similarly, the recurring display of one standard, perfectly functioning model in the AS book and the overall striving toward efficiency and optimal health, itself an inheritance of evolutionary theory, can perpetuate comparable biases. While the homepage states that the AS is open to all, independent of ability, religion, class, race, or gender, will people feel represented by the book who use wheelchairs? The AS is intended to prevent injury and to foster healthy motilities for all dancers, yet the minimal amount of (neuro)diverse bodyminds shows in AS classes and workshops as well. Teachers and students are usually slender, well trained, and able-bodied—yet vary in age and degree of ability.

Politics and ethics aren't left at the studio door either, as became most apparent in the recent debates around Covid-19 and vaccines against the virus. It is Faust's continued insistence on a white, liberal version of rights-based equality that increasingly rings hollow to members of the AS community. In the name of that equality, Faust has rejected the idea of creating AS classes for specific identity groups, e.g. women, as these would unfairly exclude men. Not recognizing that the kind of equality he has in mind is a normative product of history and culture, Faust downplays and denies the dynamics of power, domination, and inequality he enacts. This is observed by other AS teachers who disagree with Faust on this point.

Authority to Authorship

As may be obvious at this point, there is a stark dissonance between the authoritative role that Faust has in normatively and organizationally shaping the AS as social community and as conceptual system, and the proclaimed goal of AS to create a space for uninhibited, curious exploration and discovery. How do the two go together?

In the early 2000s, the AS Research Network was founded to form an organizational structure and to account publicly for the AS as a growing, collaborative endeavor. The network was later renamed to AS Research Meshwork, drawing on Tim Ingold's definition of an environment as meshwork. While the AS research and teaching community is publicly called a meshwork, there is currently no established democratic organizational structure and founder Frey Faust has a privileged position within the organization which some claim he has abused to his advantage. One particular priviledge of Faust is the control over written publications under the name Axis Syllabus. Faust acknowledges that communal research and suggestions by individuals have impacted revisions he has made to the AS book, but he is the only one to author and edit the AS book. While other AS teachers and students have co-authored books with Faust, it would seem difficult or create conflict to author work in the name of the AS without Faust's approval. In an interview, Kira explains how it is paradoxical that while Faust has been central to nourishing a kind of research mentality that allows for continuous adaptation of one's hypotheses based on one's experience, a framework that led her to her findings, it is now him as well who eschews diverse opinions and findings, which may conflict with his. Kira ponders starting a journal, comparable to Contact Quarterly, which would engage with Faust's legacy productively yet allow for AS researchers to discuss their own research projects and results.

Since an allegation of sexualized power abuse against Faust in 2017, and with differing positions on the Covid-19 pandemic and climate change, there have been drastic rifts in the community, which many members perceive to be in upheaval and disagreement. These conflicts led to Faust's autocratic efforts to preserve his legacy and to centralize authorship and organization of the AS in his own hands. Some AS dancers and teachers side with Faust and have no problem with his political opinions and the harassment allegations. Others begin to

recognize and criticize the increasing lack of decentralized, democratic organization in the community. Yet others have been critical of Faust's growing abuse of power at least since 2017 already. At this point, there are teachers who fear to publicly identify with Faust and his work or have abandoned the label of the AS to describe their work because they don't want to be associated with Faust. Others are dependent on the community, recognition, and brand value of the name Axis Syllabus as teachers to make ends meet. Finally, some are thinking about redefining the Axis Syllabus from within. These differing positions and the interpersonal conflicts they create have brought Faust's style of charismatic leadership, which still holds sway on some followers yet is being identified and actively renounced by others, to the fore. AS community members are shocked to discover that they have participated in upholding an undemocratic structure without realizing it.

It seems that the AS, similarly to CI, was only minimally institutionalized with good intentions: to keep the bureaucracy slim, to be able to grow dynamically and to not trademark a system that immensely benefitted from community input and organizing. Its fast growth and popularity resulted from central charismatic figures such as Faust and the first generation of AS teachers. However, as there are now manifold political differences and conflicts within the community, the difficulty of a structure that ultimately rests on the goodwill of its founder becomes obvious. It remains to be seen how the Axis Syllabus will continue to organize and whether there will be a dissolution, a kind of institutionalization or another re-organization. What is clear is that many AS teachers and dancers are dissatisfied with the current organizational structure.

How is a deliberate space for uninhibited exploration facilitated under autocratic leadership? There are two answers to this question. First, Faust's explicit pedagogical principle,

one still enacted by himself and all AS teachers with whom I studied, is the creation of a remarkably egalitarian environment for learning and exploration. “Propose rather than impose” is a guideline taken seriously by all AS teachers and this earnest commitment to support self-study rather than to teach top-down is felt by students. Faust’s autocratic rule, if we may call it this, is not so much apparent in the facilitating of classes but in his strategic decisions of how to organize AS knowledge and the AS as a community, in his comments on the AS Telegram channel that often consist of lengthy, absolute definitions of AS concepts, in personal direct or written communication and through the circulation of mail newsletters. It is his behavior as a leader, not as a teacher (although I would not argue that the two aren’t influencing each other), which increasingly looks like a power-grab.

Second, Faust’s charismatic leadership has limited reach and does not extend over the full AS community as there are manifold local AS communities internationally. While Faust, who lives in Italy, may define the AS syllabus as a book or reference list, Diana in Berlin can define the AS syllabus as a knowing community and practice, denouncing Faust’s limitation. Kira can disagree with Faust’s research findings and teach her own, differing findings to her students in her classes. Thus, it is possible for both AS teachers and students “to be in yet not of” the Axis syllabus, taking what they find useful without ascribing to Faust’s definition of the AS (Harney and Moten 2013).

I have gotten to know a handful of Axis Syllabus teachers through my research, but I have studied the Axis Syllabus primarily with the help and in the classes of two AS teachers, Kira Kirsch and Antoine Ragot, who were certified by Frey Faust early on and have been teaching the AS for many years. They have formed their own AS dance education program called *Movement Artisans* in a dance studio outside of Berlin in which they train approximately

one hundred AS dance students and aspiring teachers in annual workshop cycles. In addition, they teach internationally at numerous festivals and workshops. They have watched the recent political upheaval in the AS community critically and have questioned Faust's opinions on more than one occasion. Nevertheless, they remain dependent on alliance as the name Axis Syllabus and their teacher certification form part of their professional brand with which they earn their income.

I have trained with and observed Kira and Antoine researching and teaching in summer workshops at Impulstanz Vienna, in weekly classes they teach in Berlin throughout the year, and in the annual AS education workshop cycle that they teach in Lake Studios in Friedrichshagen, a small town on lake Müggelsee just east of Berlin. How is research in the tradition of the Axis Syllabus conducted? What are the methods, tools and settings for exploration and discovery? Below, I'll outline what I have identified as the two main research modalities of the Axis Syllabus: research in a teaching setting and individual research of advanced AS practitioners.

Researching while Teaching, teaching Research

Research is a core element of the Axis Syllabus. Research practice is conducted by AS teachers and students as biomechanical, anatomical and physics principles are probed and potentially corrected or refined in a dance class setting that is intentionally framed as exploratory. In that regard, dance practice itself is taught as consisting of (partially) of research-oriented exploration. Methods for research are thus taught in AS classes. Taking cues from dance scholar Yvonne Hardt, I will describe and analyze how research oriented AS classes are taught (Hardt 2016). The following class description for a five-day series that Kira taught in Berlin in

Spring 2022 serves as an introductory example. It explicitly describes an AS class as a space for discovery.

> With tools from the Axis Syllabus, we are learning how to investigate, break down and describe movement with a strong orientation towards searching sustainable movement patterns. We look at safe and creative falling reflexes, sequential movement, defining individual and contextual range of motion and enhancing kinetic efficiency to name a few topics. These practices can be applied to dance and many other movement related fields.
>
> In my classes I aim to create scenarios for textured and embodied dancing and a learning environment where your body can self-organize and thrive. Movement material, sensations, coordination and perspectives of anatomy and biomechanics are proposed to explore. The information ideally self-seeds into resilient and adapted movement fitting your body and environments as well as opening new curiosities for autonomous study and practice.

Here, a designated problem-space for reflexive and systematic body literacy is proposed. This offer is not therapeutic but aims to cultivate: enhanced physical capability ("sustainable movement patterns", "kinetic efficiency" and "resilient adaptive movement"), a different perspective on the human body ("investigate, describe and break down movement", "defining individual and contextual range of motion" and "open new curiosities for autonomous study and practice"), a different relation to one's own body with heightened agency for the body ("your body can self-organize and thrive").

In cultivating these kinetic and perceptual techniques, Kira proposes, similarly as in ISSC research, to bring usually unconscious and habituated processes to the fore to consciously alter them, resulting in individual developmental growth. Through continuous practice, techniques slowly integrate into one's self-organization and feel intuitive, rather than consciously executed. Note how Kira describes the class as a learning environment for bodily self-organization and as a place where information is provided which "self-seeds" in the students' body, fitting the respective body and its environment. The body is understood as agentive in that it is adaptive to

change in interaction with environmental influences. Thus, the conveying of dance is not conceptualized as mimetic as in, for example, a folk-dance class where a movement pattern is observed and then emulated (Hardt 2016: 161). Rather, the goal is to curate a situation that is rich in information and possibility so that students can use the proposed material to engage in individual exploration, discovery, and learning.

Rather than teacher-centered learning, this teaching approach encourages guided self-discovery in a collective setting. I will illustrate this process with an ethnographic vignette from a class with Kira at Impulstanz festival in Vienna in summer 2018, which was advertised as a 5-day workshop for beginners and non-dancers and drew an audience diverse in age and ability.

We, the dance students, begin the class with learning different ways to walk, learning how to keep our feet under our body and how to move our spine as we walk. We dissect walking into different phases in a sequence, from initial floor contact, to loading response and stance, then into leg swing (see image below). I can feel the effects of this new way of walking throughout the whole day, as I have been attuned to my style of walking and keep experimenting with it. Kira has effectively organized my attention to be directed to my walking and even though the class is over after three hours, my attention remains with my feet's movement, with the underground I walk on, with the reactions of the rest of my mind and body to different styles of walking.

The next day, Kira follows up with explaining a concept of the Axis Syllabus, the banking points on the soles of the feet. The banking points are the places where the foot hits the floor (see image below): The first banking point to touch the floor is the heel, followed by outer mid-foot, the outside of the ball of the foot, and the ball below the big toe last.

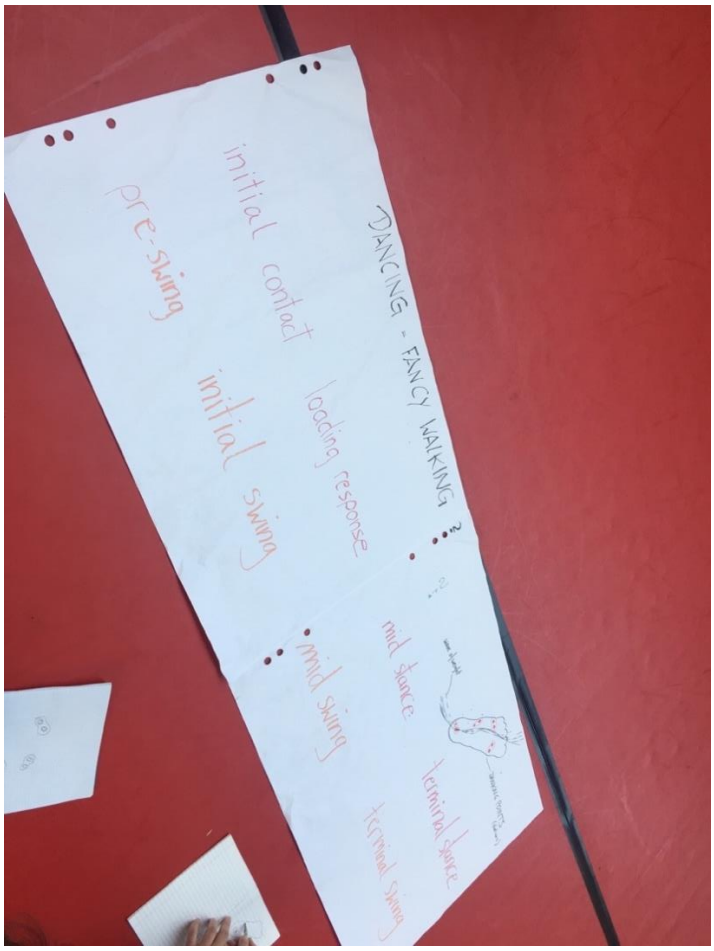

Figure 12: Photo of a drawing by Kira Kirsch which illustrates foot movement in walking and standing. Copyright: Anne-Sophie Reichert.

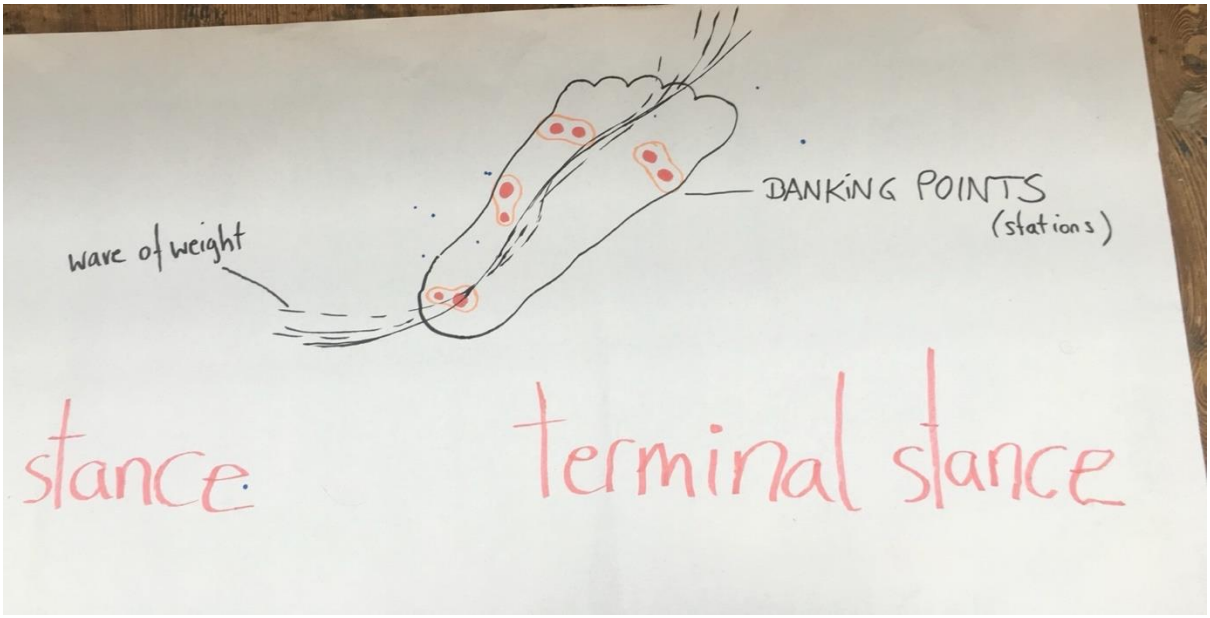

Figure 13: Photo of a drawing by Kira Kirsch which illustrates foot movement in stance. Copyright: Anne-Sophie Reichert.

We begin to walk, trying out the banking points as we shift from stance to leg swing to stance and then another leg swing. On day three, we begin with massaging our feet. Kira explains the bone structure and anatomy of the feet, visualizing her descriptions by showing us the structures on her own feet, on a skeletal model and on anatomical images of the feet. A participant voices being intrigued about spending so much time with their feet; they hadn't learned about the anatomy of the feet before and are thankful to be educated as it makes them appreciate the complexity and function of their feet.

We walk again with the ideas of stance and swing and banking points in mind and then add the toes, experimenting with weight distribution as we put weight on the toes from outside to inside. Walking up and down a long, spacious hall, in "rivers" as typical for the AS, we explore the different ideas Kira has given us, reorganizing our walking, and paying attention to the immediate effects of this reorganization. For me, the new style of walking leads to altered mobility in my arms. We share our experiences in recurring circles that are interspersed between

learning and experimenting sessions. What excites participants is the ability to have tools and direction to move in new ways and to be aware and dedicated to this process.

What also seems important is that the AS classes I observe take place in an artistic setting and not in a doctor's or physiotherapists' office. People attend because they want to engage in something probably new, hopefully enjoyable. That means attention must not be forced but is given deliberately and even with joy to the topic of walking. Finally, the inquiry is conducted individually yet not in isolation but in a collective, physically dynamic situation. As anthropologists and historians of ritual, affect and dance have described (Mazzarella 2017, Manning 2007, McCormack 2004, Durkheim [1912] 2008), collective practice creates shared affect and alters individual feelings. The "force of delight" generated in rhythmic movement can and has united communities (Johnson 2014), as described in McNeill's historical analysis of "muscular bonding" (McNeill 1995). I see a similarly shared atmosphere of joy and curiosity at play in our dance studio in the Viennese *Arsenal*, with dancers laughing, chatting, running, jumping and occasionally sighing. This atmosphere is concentrated in moments where we move in a specific style together, e.g., by walking or jumping down a line in an easy pattern, accompanied by music. The dynamic, intercorporeal practice is a precondition for an arising interaffectivity in dance research.

Physical Physics

Kira's and Antoine's classes are predominantly workshops that last for several days with one session per day. In this setting, the whole week has one topic that is explored in 4-5 sessions that last 2 to 3 hours and consecutively built on each other. In June 2022, for example, Antoine taught four consecutive classes in one week under the topic "Conserving, Harnessing &

Recycling Energy (Physics)." Physics has been mentioned repeatedly as a natural science guiding the AS, so I was curious to see how Antoine would organize an AS class dedicated to physical laws.

Introducing the week's theme, Antoine states that while he is not a physicist, the idea is to explore how physical principles feel in and can be used actively with one's body. It is, in this sense, a "felt physics." His intention for the week is to establish a relation with the field of knowledge that is physics, and he aims to do so principally by using our bodies in movement. There is no claim to ownership of physics research. Instead, we, the students, are to understand how our bodies are moved by forces which can be tracked, measured, modeled, and calculated by physics.

We begin the week by exploring gravity. Antoine lectures on gravitational force and its influence on human movement ability in what is essentially a chalk-and-talk style. Yet, we are seated in a circle on the floor already, moving and stretching while we listen, and Antoine explains. Antoine, following the line of argumentation from Faust's AS book, proposes the argument that human design is influenced already by the gravitational field in which we exist and thus, as living, evolving beings, we have evolved in relation to this gravitational field. If we understand how gravitational forces impinge on our bodies, says Antoine, we can try to situate ourselves to ride them, so that we don't need to spend muscular energy working against them.

Antoine prepares us for sensing into gravity. For this, a certain level of relaxation needs to happen, yet too much relaxation will inhibit the ability to transfer information. Antoine illustrates the principle with the mental image of a loose guitar string. Moving our bodies under his direction, we try to get the balance of tone and slack just right. We then use our own mass to generate movement. Rather than letting muscles be the primary motor for movement, we shift

our weight in space to perpetuate a movement. If the body is used this way, muscles can be used more like brakes, for decelerating rather than for accelerating.

In this respect, Antoine reminds students of a more general principle of the AS about efficient use of energy. The questions shouldn't necessarily be "How can I make myself stronger?" but rather "How can I work with what I already have?", acknowledging the potential within. Efficient energy expenditure is critical when you start to move fast, according to Antoine. When moving fast, deceleration is what requires efficient organization to protect the integrity of the body and to conserve energy. If deceleration is not carried out diligently, injury looms. Deceleration is more injury-prone than acceleration. Antoine proposes that we each find an oscillatory movement, which will bring with itself naturally acceleration and deceleration. As we try to stay in a loop of one recurring movement, it becomes clear that this is very difficult. First, there are interferences. Second, it is difficult to decelerate to zero if one moves only in one direction (try out an arm swing if you like). If one changes direction between repetitions, however, one does not have to decelerate completely. We try again, keeping slight variations in our oscillatory movement (I, for example, simply swing my left arm) and changing directions. This makes the exercise easier, and we continue to experiment with the ebb and flow of accelerating and decelerating movement.

We then take our oscillatory movements into a small choreographed sequence which provides time and space to explore the riding of gravity yet makes the exploration collective and adds the new element of sequenced movement. The latter two added elements are important to prevent boredom for students and to vary the learning environment. On day two, class begins by learning about different wave types (mechanical, longitudinal, rotational). We try out a rotational wave turning around our own axis on the floor, experimenting with how much energy we need to

spend (we motor the rotation by moving the pelvis) and what level of tonus we need for the wave to follow through. From here we move into a choregraphed score which enables us to try out different types of waves.

The Models we move with matter

Since Axis Syllabus relies on anatomy, orthopedics, sports science, biomechanics, and basic physics for its guiding theoretical principles as outlined in Faust's AS book, I'd like to exemplify how these natural scientific sources are cited, used, and appropriated in the AS class environment. At any time, one can find a stack of anatomy books lying around next to the dance floor. Often, these books are consolidated into a little library adjacent to the dance floor.

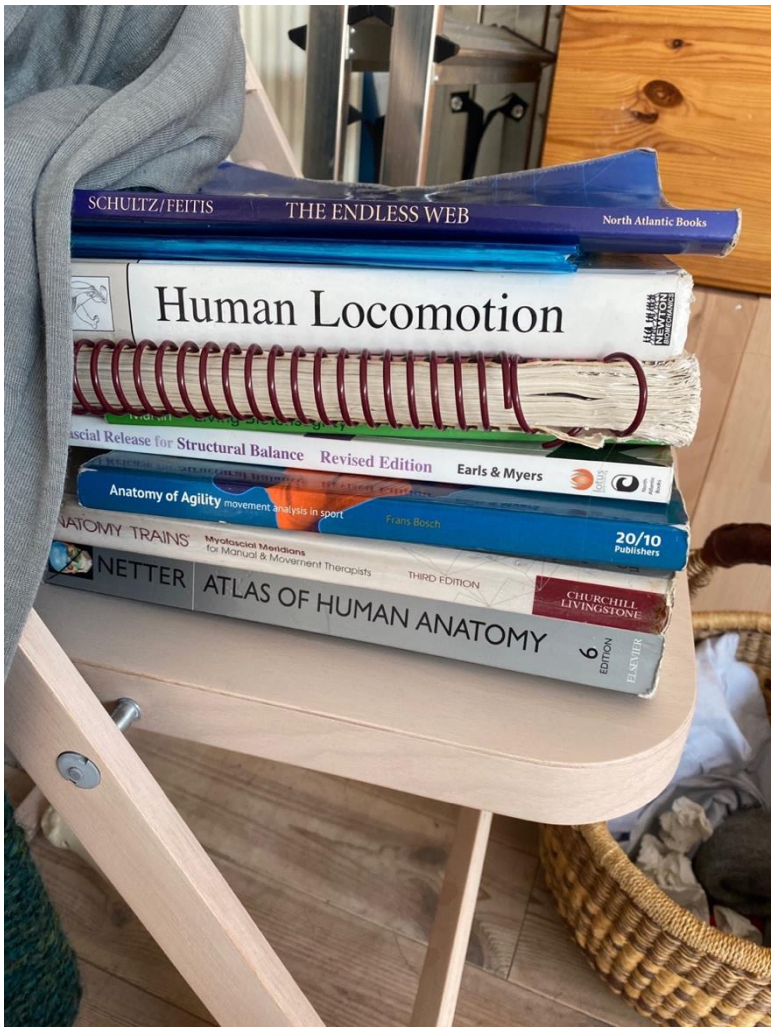

Figure 14: Photo of a bookstack positioned adjacent to the dance floor in AS weeklong training module. Copyright: Anne-Sophie Reichert.

Figure 15: Photo of a bookstack positioned adjacent to the dance floor in AS weeklong training module, next to a stack of bones. Copyright: Anne-Sophie Reichert.

A model skeleton or different skeletal body parts are in close range to the dance floor so that teachers can use it to explain specific bones or joints and their function. In class break, I observe students studying the skeleton or skeletal parts, by simply looking at the skeleton, touching, tracing moving bones or bone joints. In addition, pages of the AS book or drawings of biomechanical, physics or anatomical principles that have been introduced in a class are copied and tacked to the wall or floor. This way, ideas that are worked with are visually present and can

be referred to after they have been explained. I see students studying this information in breaks or quickly in between finishing and rejoining a river of movement while the class is on.

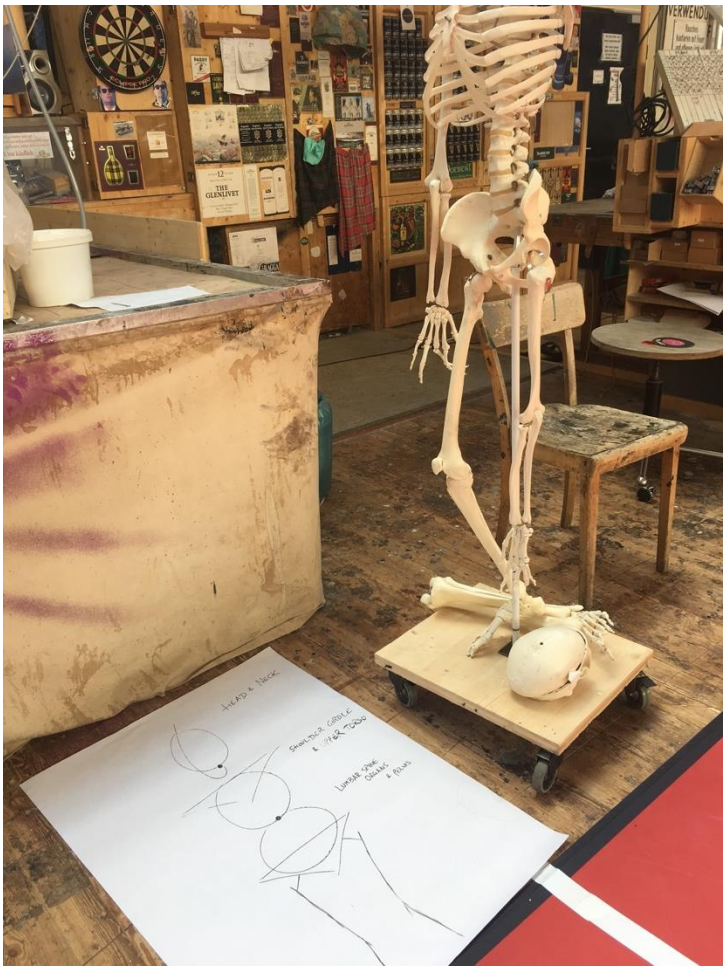

Figure 16: Photo of drawing that illustrates motion centers of the spine next to skeleton. Copyright: Anne-Sophie Reichert.

For AS teachers Kira and Antoine, it is evident that these visuals and the overall models they use leave a strong impact on students and thus they choose carefully.

In an AS module in Spring 2022 for example, which is devoted to the AS concept of motion centers of the spine, Kira lectures that it matters with which models one moves because the models influence and change us. In class, Kira quotes Donna Haraway on how a preposition can change a reality in that it makes a big difference if I think with the body instead of about the

body.[12] In this way, the body is not presented as separate from me but through the 'with' it is signaled that I am always already in a relationship with my body and this relationship changes both of us. In other words, through strategic use of language, we can influence how we conceive of ourselves: as separate from or as in relation with our environments, as mind and body or as bodymind. While the dancers I worked with, broadly speaking, favor or advocate bodies and worlds in relation, their practical use of language can cause separation as much as connection. Recall, for example, how Diana Thielen thought of AS technical language as beneficial in that created distance for her between her body and herself, with her body as the locus of her emotions. I am reminded as well of how moving by sensing into the pull of gravity on my mass feels like inhabiting a different, somewhat alien body than moving by motoring a rotation with my pelvis. It's a body guided differently, thus feeling slightly foreign. As I am training gravitational force as movement motor, I become familiar with it and the movement and thus body moving feels more like myself again.

In the week-long module, Kira brings together the idea of motion centers of the spine with two different models, one taken from biomechanics and one from architecture.
Kira begins with tensegrity, an architectural model illustrating the integrity of a three-dimensional structure with a distribution of compression and tension through flexible rather than static elements. Tensegrity has been used in the world of somatics and dance over the last decade because with the advancement of research on fascia, a model was needed that superseded the prevalent biomechanical model, itself drawn from classical mechanics. Within the biomechanical model, the body is a system of relatively static bone levers. Yet with recent research on fascia,

[12] This is a moment in which we can recognize training in the Axis Syllabus as a site for critical praxis, where social, critical theory is placed alongside bodilymental practice, "laying them side by side as contiguous rather than hierarchical fields" (Spatz 2015: 108).

the overall body is now understood as a tensegrity system with fascia and muscles holding bones and overall body shape in place through an interaction of tension and compression. This evolution of models signals how dance research reflects scientific changes, moving from biomechanics and static metaphors to tensegrity and images of webs and relationships that lend integrity to the body (Hardt 2016: 166).

Kira introduces the idea of tensegrity in class by asking the students to find a partner each and then to share with the partner what one knows about tensegrity. Her advice in case you don't know anything is: Imagine! Findings of the duos are then shared with the whole group. After that, every duo gets tools to apply compression and tension (a wooden stick and a stretchy rope). Students each hold one end of the stick and one end of the rope and are encouraged to experiment with the interaction of the two forces on the whole system consisting of the two dancers and their connecting tools. Ten minutes in, duos are advised to merge with another duo and explore the difference of the forces in a larger system. Another ten minutes later, all dancers merge into one large tensegrity structure moving and organizing itself. After the exercise, all students come together and share their experience and observations.

The idea behind this exercise is that students will be able to imagine and sense their own bodies as tensegrity structures after they have learned about the functionality and property of a tensegrity structure in physical exploration. This will result in a different movement capacity and quality than if one imagines the body to function like a rigid bone structure operating principally with mechanical levers. It also exemplifies the kind of bodymind learning that Kira and Antoine advocating for and that is recently advances as beneficial by learning scientists. The idea is that even the learning of complex concepts begins in body movement (Abrahamson and Sánchez-García 2016).

Kira continues by explaining how a tensegral system is a system with omnidirectional instead of perpendicular force. She then contrasts how one can understand the body within both approaches yet that these lead to different outcomes. From within a framework that understands the spine to be under perpendicular (normal) force like building blocks layered on top of each other with force acting perpendicular to the surface, it may make sense to fix a hernia by fusing two vertebrae. Yet, recent natural scientific and somatic research has shown that fibers and fascia in the spine function omnidirectionally, according to a web of dynamic tension and compression. The spine is made up of many little parts that move in concert to create a balanced reaction to external forces. In a tensegral system such as this, two artificially fused and therefore static vertebrae will create a block that disables the dynamic adjustment of tension and compression of the system, thus potentially creating tension or pain in other parts of the spine.

To get an understanding of the material that enables tension and compression of the spine, we look at anatomical images of the intertransversarii, the muscles connecting the spinus processes. Spinus processes are the bony projections off the back of each vertebra that you can feel as you move your hands along your spine and sometimes see in others or yourself as they curve under one's skin. Kira is mindful about and reminds students that it takes time to look at and receive something unfamiliar, so we stay with the images for a while. We partner up again and one partner traces and holds the intertransverse muscles between the spinus processes of the other partner to build sensory awareness for the partner being touched in this area. Kira advises that an apt quality of touch to meet the intertransversarii and the spinus processes is vibration. In a tensegral system, such as the spine, all vertebrae "swim in a sea of tension." Tapping lightly and quickly on the spinus processes, one can "hear feel" whether they vibrate or not. If they are not vibrating, they may be blocked in some way. Note how what is trained in this moment is the

students interoceptive and proprioceptive ability as they are encouraged to tune into the vibration of their own and somebody else's vertebrae vibrating. Students do not solely learn about the spinus processes by memorizing their look and function but by training how to touch and hear them.

In working with two competing models to explain human anatomy and movement, Kira is careful to not fully dismiss the idea of biomechanics. Although biomechanics has a mechanist history that seems outdated in face of current research on fascia and muscle function, she believes that it is possible to have an evolution within the system of biomechanics by integrating new ideas such as tensegrity. This is a moment of *local* self-correction and adaptation of the references of the AS which form an epistemological system. Kira acknowledges a new scientific paradigm, tensegrity, that potentially renders the biomechanical paradigm outdated. For her, both paradigms can be taught within the frame of the AS. Kira treats the two models as hypotheses to be held lightly and to be continually experimented with and probed, rather than to be accepted as exclusive, succeeding paradigms.

An Axis Syllabus Laboratory

Each weeklong module of Kira and Antoine's yearlong Axis Syllabus training (there are three one-week modules and one three-week module in the end) has a designated laboratory. This is a three-hour timeframe that is scheduled for an afternoon or evening halfway through the week. In their own words, a laboratory is "a held yet less facilitated space than a class for studying in our extensive Movement Artisans library, experimenting and building models,

entering small group discussions, exploring task-oriented applications of principles, constraint led learning, complimentary physical practices etc."[13]

In one laboratory in fall 2021, Kira explains the three motion centers of the spine as we sit on the floor surrounded by books and bones. Motion centers are located under a larger mass and have all choices of direction (flex and extend, bend, rotate axially). The first motion center is under the head, the next motion center is under the heart around the height of the 8th to the 12th thoracic vertebrae. The third motion center consists of the hip joints located under the pelvic abdominal mass. There are other important segments in the axial line such as upper/mid thoracic and lumbar spine and the base of the neck, but all of these are not tri-axial, they have a more limited choice of motion. All motion centers have a relationship to the axial masses above them and are tri-axial. The masses (head, pelvis-abdominal, chest masses) are comparatively easy to get into motion because they are located above the motion centers which have maximal choice of motion (tri-axial).

Different stations are set up in which one can either read books, look at and touch anatomical models, or try out specific movements pertaining to the motion centers. There is also a model of a clock with a stick fixed at the center of a circle of cardboard. One can test the ranges and limits of one's axial movement (ROM) at the motion centers reading the range off the clock dial.

[13] https://www.movementartisans.net/copy-of-2018-19-cycle (last accessed 07/08/2022)

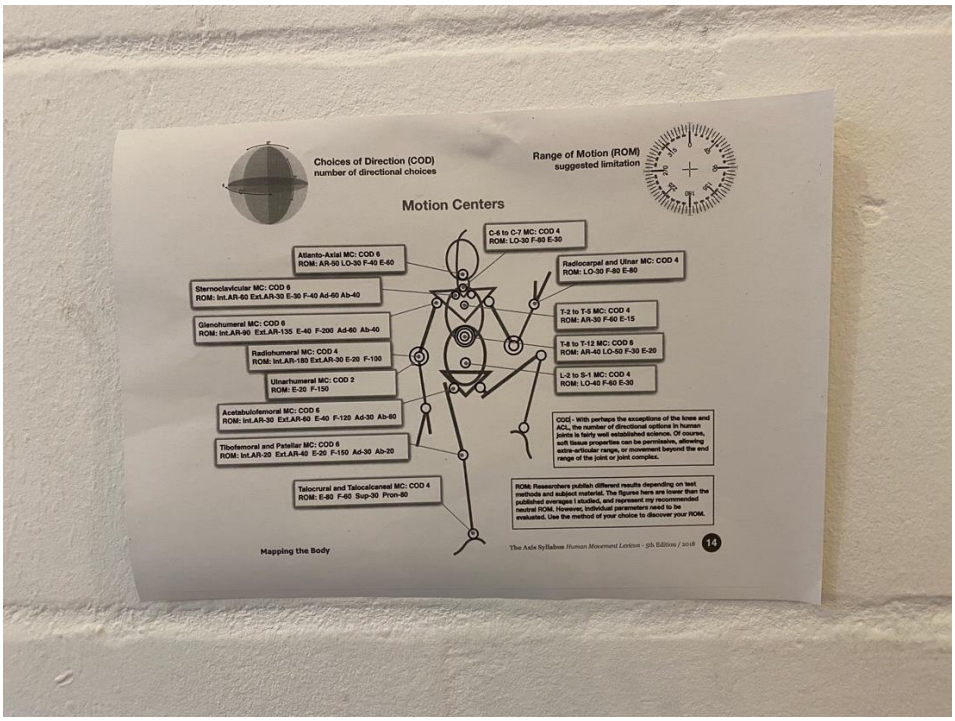

Figure 17: Photo of a printout of the AS monograph tacked to the studio wall in AS research laboratory. Copyright: Anne-Sophie Reichert.

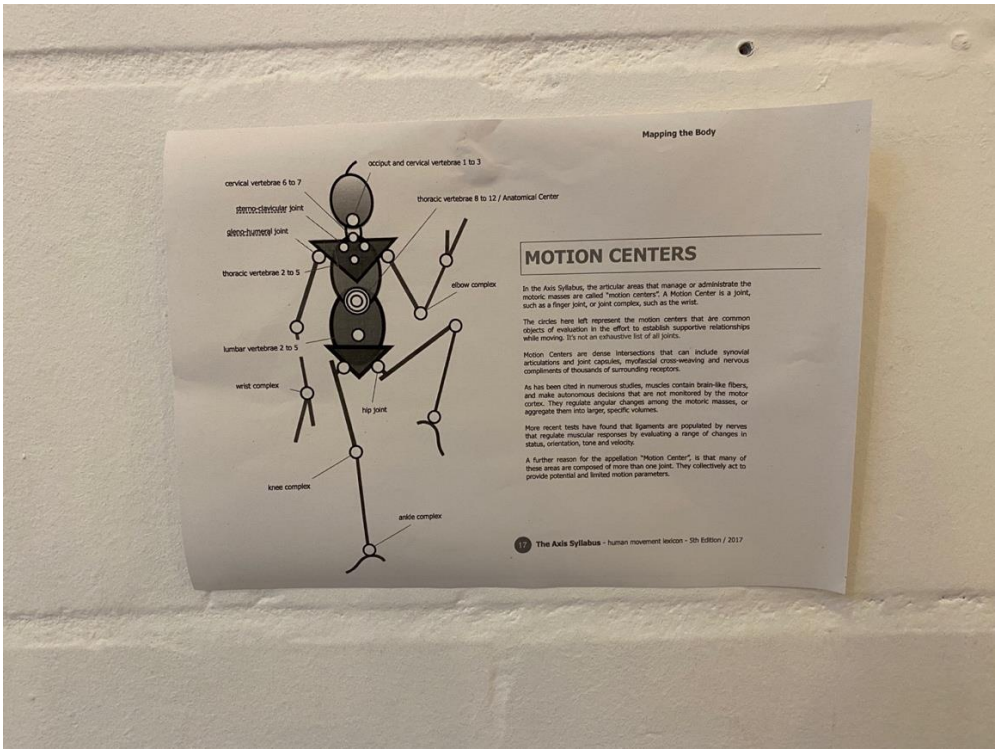

Figure 18: Photo of a printout of the AS monograph tacked to the studio wall in AS research laboratory. Copyright: Anne-Sophie Reichert.

Images from Faust's AS book pertaining to the motion centers are taped on the wall. We have already moved the motion centers earlier in class and had classmates identify the motion centers on our bodies to help us locate them correctly and build sensory awareness in these areas. The goal of this lab is threefold: to let what we have already learned sink in more deeply by exploring the information in another format (e.g. visual instead of vocal or sensory instead of visual); to gather further information as desired; and to ask questions and try out answers that have come up about motion centers in sensing and moving.

Another lab, a few months later in June 2022. In the main dance studio, Kira and Antoine have set up several experimental stations. All materials are placed on the floor so that engaging with them necessitates sitting on the floor. The different stations are separated from each other

through spatial demarcations, e.g., one station is set up on a blanket, another one on a mat. Yet another one is just removed by leaving space on the floor.

Antoine introduces the stations as maps for developing a relationship to the body, yet is adamant about them being maps and not the actual territory. As I ask Antoine later about his take on models, he explains that the map can say something particular about a phenomenon yet misses out on the lived complexity of the phenomenon. And a model can give a sense of recurring relationships of objects to another, yet it cannot say anything about the individually specific shape and functioning of one's body, which can differ drastically in look and ability from person to person. Students can stick around a station as long as they like and can work on as many stations as they want. Antoine, Kira and Nina (who has been teaching body mind centering classes throughout the week to complement the AS classes) are around for questions and take part in the work at the different stations.

There is one station with a full model skeleton and different skeletal elements and a big blue plastic bag filled with balls of plasticine modeling clay. Students are encouraged to take a ball of plasticine to model an existing bone. This helps with learning the overall shape and especially with grasping the functional density of a bone, understanding where a bone needs to be thick and where it needs to be thin to the end of working well in relation to other bones, muscles, nerves, and fascia. While some bones may look similar, this is a way to recognize characteristics specific to each bone, says Antoine. A few students gather in a circle and begin to form bones together with Kira. As bones are being formed, students try to identify those bones in their own bodies, helping each other out. Antoine helps as well. This is a quite literal act of growing together, gaining skills in forming plasticine, understanding a bone's shape and function through manually manipulating the plasticine, and, making actual bones.

Figure 19: Photo of AS workshop participants modelling bones from plasticine. Copyright: Anne-Sophie Reichert.

Figure 20: Photo of plasticine bones modelled after human skeleton model. Copyright: Anne-Sophie Reichert.

Figure 21: Photo of two spinal vertebrae. One is modelled from plasticine, and one is from a store bought skeleton model. Copyright: Anne-Sophie Reichert.

Some students simply use this station to look at anatomical models in detail, studying their shape and function. It may take a self-proclaimed body nerd to get excited about the differences in structure of vertebral bodies as shown above, the right one a store-bought item, the left one modeled. People attracted by AS classes, as described earlier, often arrive at a comparatively late stage in their journey through different kinds of somatic or dance techniques and practices, probably because the AS is quite demanding physically and mentally. Nevertheless, with a space well prepared, even curious passers-by, such as partners dropping off dancers or children waiting for their parents to finish teaching get quickly drawn in and are fascinated by the kind of visceral learning that's on offer. I imagine this is what Dewey had in mind when he proposed that students learn through experiencing in an environment prepared for their needs (Dewey 1938).

Figure 22: AS workshop participants looking at bones in AS laboratory time. Copyright: Anne-Sophie Reichert.

There is another station that is set up as a library with many books spread out on the floor, a gym ball and cushions in between. Students hang out and read some of the books available. Topics include human anatomy, motor control, the evolution of human function and movement. There is, for example, The Human Strategy. An Evolutionary Perspective on Human Anatomy by John H. Langdon. There is Thomas C. Michaud's Human Locomotion. The Conservative Management of Gait-Related Disorders and Bonnie Bainbridge-Cohen's Sensing, Feeling and Action, a monograph foundational to body-mind centering (BMC).

Figure 23: AS workshop participants looking at bones, books and trying out movements in AS laboratory time. Copyright: Anne-Sophie Reichert.

Lastly, there is a station with tactile experiments. Kira has laid out silk scarves and encourages students to "sense into" the feeling of moving the scarf with varying pressures across the cotton surface of the blanket below. The quality of movement of these two materials moving against each other is similar to the quality of movement one senses when touching the periosteum, the layer of tissue surrounding one's bones. Thus, if one is interested in reaching for and moving the periosteum, experiencing the silk-scarf-on-cotton touch can teach you what to look for. This experiment is set up as a tactile follow up to an earlier exercise in class. Two days

ago, we engaged in a partner exercise touching and moving the periosteal "sleeves" of the bones, feeling for a difference between touching the sleeve and touching the actual bone.[14]

In the back of the picture below, behind the two silk scarves you see two bowls with a white liquid, with students immersing their hands in the liquid. The liquid is a non-Newtonian fluid, a mix of water and starch that behaves differently than most fluids. This mix changes its viscosity when force is applied. As force is applied quickly, water moves out of the way and the surface one touches becomes solid and impenetrable. If one moves slowly, one can immerse one's fingers or whole hand easily in the water-starch-mix. Kira and Antoine conceive of this mix as a model for a muscle's response to touch. If muscles are touched with a fast and hard grip, they tense up. If muscles are touched with a slow and soft, yet determined and directed touch, they loosen.

[14] Kira's interest in the periosteum comes from a class with cranio-sacral therapist Shannon Cooney who was a guest teacher in the previous Movement Artisans AS module. Below the periosteum flows the lymph, which cranio-sacral therapists try to touch and move.

Figure 24: AS workshop participants experimenting with water-starch mix, to experience and experiment with muscular tone response to touch. Copyright: Anne-Sophie Reichert.

The day following the lab, we make our way to another kind of laboratory. After an AS dance class in the morning, students divide into two groups, and I leave with the first group to travel from Friedrichshagen to Berlin-Mitte. We have an appointment with an anatomist at the University hospital Charité's anatomy lab. The night prior, Kira sent the anatomist a "wishlist" with anatomical structures that we are interested in and would like to see. Some questions have arisen in our own anatomy lab that might be answered by looking at a cadaver.

We take off our coats and bags, dress in lab coats and put on latex gloves. I have been excited about this trip while others have been unsure as to whether they want to come, scared to encounter corpses. Yet, as I see the cadaver and the belly is folded down so that we can look at the organs, I must sit down and at some point, I leave the lab as I am nauseous and dizzy. The other dancers seem focused and unfazed, excited to explore what is in front of them on the table. We hold lungs and a heart, look at nerve fibers, a spine and the spinal cord. There are a number

of cadavers, yet none is fresh. All have been prepared with formaldehyde and are cooled to slow down the process of decay. They all have become characters in the lab already as they have been around for a while, like the "the little old lady" that we are looking at today. As the anatomist lifts the hairy lid of a round object, we look at a brain and the nerves in the brain stem, already partially outside the skull, ending abruptly as the head is cut off from the trunk.

AS dancers who are far along in their training or work as teachers themselves are interested in verifying the accuracy of anatomical details which they have so far only explored by looking at visual or three-dimensional anatomical models or through self-examination, touching bones, muscles, tendons, and fascia through but not without the skin. While texture and structure of tissues is altered by the conservation process, there seems to be an implicit agreement in the air that this is the real deal. Dissection classes are not known to be the favorite part of medical studies, but these AS researchers expose themselves willingly and with excitement to the situation of seeing and touching dead people. This is what it means to be a body nerd, I suppose.

Individual Research

Not all but many AS teachers whom I have met engage in their own research activity, research and curiosity about movement being the reason that drew them to the AS in the first place. This individual research practice is, like the different research styles of humanistic or social science researchers, highly idiosyncratic.[15] Yet, it often includes recurring elements:

[15] Sociologists and anthropologists of science and technology have pointed out the idodyncratic nature of natural science research practice as well. Yet, the common idea remains, and it is indeed not untrue that there are more standardized research methods and protocols in place in theory. Often, these stem from the wish for reliability and validity, from rules around ethical conduct with living research subjects or particular instructions and guidelines for

collaborating with scientists or other sports professionals, reading natural scientific literature, especially recent journal articles on the topic under investigation, and probing hypotheses in movement exploration in the dance studio. The results are shared within local research environments.

Individual research follows a less defined pattern than a research situation in class and stretches over several weeks, months or even years. With two exceptions that I know of at the time of writing, there exists next to no funding for pure research practice in Germany.[16] Hence, research time is unpaid und research can only be conducted independently of teaching after enough income has been generated through teaching or through grants that fund performance work. Despite the absence of compensation, I have talked to more than a handful of AS teachers in Berlin alone who are engaged in continuous individual research. Hence, I'd like to devote a few final pages to the process of individual research.

Antoine has been interested in neurophysiology and reflexes for a few years. This is a topic not covered in the AS book but that excites him. Antoine researched and read available books and journal articles on the issue and began trying out and probing propositions from the literature in movement in the dance studio. This try-out first happens individually and later in class as Antoine shares his individual research with an AS class where it's tried out, reflected upon and complemented by participants who have other backgrounds, for example as physios, osteopaths, or physicists. I first became aware of Antoine's interest in neurophysiology as he taught a one-week module on the topic to AS students in April 2022. Being able to teach on the matter, however, requires that one has worked with and through the material for a while already

using equipment and material substances. Nevertheless, natural scientists interact with equipment or research subjects according to their own individual predispositions.

[16] Through the Covid pandemic, more state and city funding has been released for research-only dance projects because performances were cancelled or could not be planned in the first place.

(more on that in the next chapter and see Downey 2008). As I interview Antoine about his own research process, he shares that he doesn't take a new topic into a teaching environment right away. He first tries out what he has read about for himself and lets time pass for the material to consolidate in his own movement and research process, cross-pollinating with other ideas. He then carefully chooses where and how to share what he has learned. With neurophysiology, for example, Antoine intentionally proposed it as a topic to explore with students at the Movement Artisans training because he knew that participants were long-time AS dancers who are already familiar with basic AS references and are excited by new information. He would not teach it, for example, in a beginner's workshop in a community he does not know yet.

Coherent with an overall AS goal, the main motivation for Antoine's inquiry was to make moving both, more efficient and more enjoyable, putting the knowledge gained to use to work better with what we already have. This is meant in the sense of: if you understand some existing capacity well, you can use it more efficiently. Since the human body is a complex tool but space and time for learning how to use it are limited, Antoine believes that he and others will benefit from understanding this tool better. Note how efficiency and joy are aligned here rather than contradicting each other. One could say this is obvious: a well-moving body is fun to inhabit. But there is also the strong belief, often uttered from a traditional leftist point of view, that efficiency is the opposite of individual joy, rather it's an external demand on an individual who struggles to meet what is expected of them. Antoine's conception of the two, efficiency and joy, shows how efficiency can be enjoyable when it is self-directed, and it is not employed or honed to serve an external goal.

Regarding neurophysiology, a first big discovery for Antoine was that coordination of movement in the human body, although it requires nerves to work, is not mainly controlled by

the brain. This means, an input does not necessarily travel up the spinal cord to the brain, is processed and then a response travels back to the corresponding body part where the action is carried out (centralized motor-control). Rather, as has been shown in scientific research which Antoine has studied, decisions are made more locally than centrally (by the brain) as previously thought. The more local a decision is, the quicker it is since the signal does not have to travel up the spine to the brain and back. Antoine here compares the human body to a flock of birds—both are complex biological systems with decentralized decision making.

I learn from Antoine that an example of local decision-making in the human body are reflexes. Reflexes developed to improve timely response-adaptability. From an evolutionary biology perspective, the ability to respond and adapt in a timely manner is crucial for self-protection. The stretch reflex, for example, is a reflex of pulling back after stretching. The stretch reflex is a spinal reflex which means that its signal doesn't travel from the nerve in the muscle up to the brain, via the connection of multiple synapses but just into the spine via one synaptic connection where a response is triggered and travels back. The reaction time is thus much quicker than if there were more synapses involved in the process. Stretch reflexes are happening in the body all the time to protect bodily integrity. They are an example of de-centralized motor-control.

What matters for Antoine is becoming aware that they are happening as small local decisions and then using them to his advantage. The relevant task is to become aware of which decisions are made locally and then to find a method to agentively make local decision-making better. For Antoine, better means more powerful and flexible, adapting quickly to change. Interestingly, and different from Nita's approach, Antoine does not want to consciously adapt to local decision making. I think, in fact, he would believe this to be very difficult as it is an action

defined by not involving the brain. Could it thus be identified consciously? The question that arises for Antoine is how he can create an environment in which his body becomes more agile in localized decision making. Antoine has developed several strategies for training localized decision-making based on reading relevant literature from motor control studies, sports science, and cognitive science and based on his own physical research in the dance studio.

A first step is to train attention to reflexes. Antoine calls this "sensing into reflexes." Of course, reflexes cannot be planned but one can become more or less attentive to them.
In a second step, one can improve the adaptative ability of a decentral decision-making pattern by changing the context in which one is training (speed, repetition, degree of fatigue, diversity of environments, orientation to gravity). Lastly, one can deepen or change one's attractor state. In movement, there are two facets involved, attractors and fluctuations. These need to be distributed effectively for optimal movement. Attractors are mechanisms that self-protect the integrity of the acting person. "Attractors are multi-applicable components of movement, they make control of movement easier for the system by reducing the total degrees of freedom within the body", in the words of Frans Bosch, a sports scientist and coach (Bosch 2010). One can train attractors through repetition or constraints-led practices, thus making it easier for oneself to automatically retrieve and use attractors. The better one can do this, the deeper the attractor state is. And there are fluctuations, that organize what needs to fluctuate to adapt to the situation at hand. These are important: a movement can't consist solely of inflexible components but needs to contain flexible and constant elements.

There is a roadblock built into the training of something we understand to be automatic and out of reach for cognitive control. If we pay attention to the organizational pattern of a reflex to adapt it, we naturally slow down and thus alter the reflex. Slowing down and chunking an

action is a common pattern to understand, imitate and then train it until it slowly becomes integrated into one's body schema. However, to train reflexes, they need to be executed in real time and not in top-down controlled slow motion. The nervous system doesn't transfer learning from slow motion practice since the conditions are too different from actual movement speed. To the nervous system a slow and a fast response are so different that they may as well be two different things. Slow motion may only be helpful for cognitive understanding to "follow-up." Thus, the difficulty lies in synchronizing cognitive control and decentral motor control so that one can let local decision making unfold in real time while not losing conscious grip on what is happening. In researching neurophysiology and the adaptation of movement patterns, Antoine's intention is not necessarily to challenge canonical knowledge but to experiment and explore in the absence of existing or solidified natural scientific sources. What becomes apparent here, again, is the perceived and stated difference of AS research from natural scientific research. Antoine perceives himself in a less authoritative and powerful position than the scientific resources he engages with. From my observation, this has less to do with a qualitative difference of the actual hypotheses that the scientific research generates in relation to the hypotheses Antoine himself proposes, and more with the highly professional, well-institutionalized, and aptly funded nature of the natural sciences and their the collectively acknowledged epistemic authority.

Differences to Natural Science Research

While the AS emulates classical forms of natural scientific research, there are several notable difference of AS research to natural scientific research.

First, the "classic" components of a laboratory environment, while chosen carefully, are less bound to a specific environment with expensive, tech-intensive equipment allowing for heightened mobility. The dance research environments are often especially devoid of technology. Phones are switched off, computers put away. Research can and regularly takes place in dance studios, but I have participated in dance research in gardens, parks, at lakes, and in forests. Moreover, researchers need not be especially trained or qualified beforehand to participate in research. While teachers and dance researchers can easily tell the level of specialization and training of a dance researcher, there is usually no prior qualification needed to participate in dance research projects. And, research is exploratory, in the sense of basic research, rather than geared toward confirming or refuting previous hypotheses as it is less constrained by institutional (private and public stakeholders) demands which characterize modern experimental methods.

Furthermore, Axis Syllabus as research openly strives to be fun and enjoyable. Students and teachers see no conflict in research, being a communal affectively charged engagement and research as leading to a gain in knowledge. Sociologists and anthropologists of science have described that playfulness, fun and affective relations of lab colleagues play a non-negligible role in scientific research practice as well (Myers 2008). Yet, in the public representation of scientific practice, these elements are downplayed or hidden to protect scientific objectivity. In that respect, students are encouraged to actively engage their emotions and imagination when researching a given concept or technique. And creative processes, such as modeling bone structures out of plasticine are facilitated and supported as they are understood to contribute to the goal of better understanding human anatomy and movement.

Dynamic Epistemology

In the chapter on the ISSC, I have proposed that the kind of knowledge dance research creates are changed bodymind techniques and altered bodyminds. The same applies to the AS. Engaging in research practice, AS students and teachers educate and train their bodyminds and the techniques that pattern their matter as much as their action. They build sensorial awareness and attention for specific body parts, bodily phenomena such as reflexes, and collective movement research experiences. In studying anatomical, biomechanical, and physical principles in an environment in which they can be explored and probed dynamically, AS researchers learn not solely by taking in conceptual content cognitively, but in a manner that integrates cognitive, affective, sensory, and kinetic elements (more on this in the following chapter). Since AS researchers investigate the human body in movement *in vivo*, they can reach different conclusions than natural scientists studying human anatomy and biomechanics on cadavers.

Yet beyond changing individual bodyminds, I'd like to suggest that we can understand the Axis Syllabus in itself as a dynamic epistemic structure. Specifically, I propose that we may understand the AS monograph authored by Faust as anchor, and the larger AS community and its research practice as what philosopher of science Hasok Chang has described as an "epistemic iteration" (Chang 2004). Chang proposes the idea of an epistemic iteration as inspired by yet distinct from the idea of a mathematical iteration. An epistemic iteration denotes a process in which succeeding stages of knowledge, which each built on the preceding one, are created toward advancing a system of knowledge (Chang 2004: 226). "Each link is based on the principle of respect (described further below) and the imperative of progress, and the whole chain exhibits innovative progress within a continuous [yet plural] tradition" (Chang 2004: 226). As follows, I apply Chang's concept to the epistemic achievements of the AS.

A 1st stage begins with Frey's dissatisfaction as to the non-existence of natural scientific explanation and knowledge of the human body in motion in the dance world, which he suspects leads to considerable injury. Dancers don't know according to which principles their bodies work; thus they use them wrongly and incur injuries. Here, a first normative goal emerges. This goal is to develop a curriculum based on natural scientific research that can be distributed and taught, will reduce harmful impact, and will establish healthy, efficient movement patterns.

In a 2nd stage, Faust matches memories of movement experiences and specific learnings from his movement experience onto anatomical and biomechanical models and physical principles. This step is interesting because it treats two different existing systems of knowledge, self-discovery, and natural scientific references equally. These two existing, continuously developing systems of knowledge form the basis for further inquiry. In the case of the AS, in the beginning, the natural scientific theories and presuppositions, for example, a biomechanical explanation of the function of a knee and its evolutionary development and adaptation, are affirmed largely uncritically. This simply has to do with the fact that the chosen natural sciences (orthopedics, biomechanics, anatomy, sports medicine, and basic physics) seem to be the most fitting systems available, not with the fact that they are complete or true (Chang 2004: 225). Quite to the contrary, Faust as much as Kira and Antoine repeatedly point out the limits of scientific studies of movement (yet not of basic physics). One example here might be the range of motion of motion (ROM) centers. Faust disagrees with the method of scientific ROM studies. He thus self-experiments and tests ROM on his own motion centers. He documents the results and suggests these for others in the book with the note that ROM differs from person to person and should thus be measured individually.

In a 3rd stage, Faust's initial findings as they are still consolidated are tried out and refined in dance workshops and classes and with the help of AS dancers.

From here, in a 4th stage Faust makes his initial findings publicly available to other AS researchers and teachers by publishing the AS book. Within the AS community, which is growing and slowly formalizing, the AS book as manual and reference system now forms a foundational system of knowledge that is affirmed by the AS community as a basis for further research.

In a 5th stage, this basis, the AS references, and ideas as outlined in the book are taught in AS classes where they are learned, probed, and further developed. In the teaching situation, the focus is first on learning the ideas by asking explanatory questions. However, it can happen that a principle is questioned based on findings from one's own movement experience, or, that the basic system of the AS seems too limited to include one's own interest or experience (this is the case of Antoine's research of neurophysiology as described further below). In this case, rather than abandoning the whole system of knowledge, the system can be adjusted or corrected in class. This happens locally in a research and teaching setting or through individual research results by one AS researcher. For the AS book to be adjusted, findings must be relayed to, discussed with, and finally implemented by Faust. Faust himself can adjust the AS at any time as he sees fit. He sometimes explains a pursued change in a blog post on the AS forum. In this stage, once affirmed knowledge, that was needed as a baseline to conduct further research, is changed.

In a 6th stage, as the AS knowledge system is shared more widely, as more AS students become certified teachers and teach the AS internationally, and as the AS research meshwork grows further, the number of possible limitations of the initial system and possible adjustments

will increase. This is visible in discussions in the AS community's Telegram channel, where a discomfort with some normative assumptions of the AS mounts. It may also happen, as in the case of Antoine's interest in neurophysiology, that new basic systems of knowledge are integrated into the pool of scientific knowledge systems that undergird the AS. When is an adjustment, i.e., an advancement of the knowledge system AS valid? Based on my observation, for an adjustment or enrichment of the AS to be locally valid, it does not have to be included in the AS book. Rather, discussion and probing of the suggested change in one's local research environment is sufficient.

Such local affirmation supports the idea that the goal of AS knowledge is not a kind of abstract absolute truth but refining how one understands one's own body in motion. The test whether the discovered information makes sense and leads to progress of the overall AS knowledge system is whether the discovery or addition makes sense to more than one person or is at least useful in the sense of enhancing one person's ability to move. To be valid, the newly discovered information does not necessarily have to be coherent with the AS book. Local affirmation points to the ultimately limited reach and authority of the AS book over the AS community. The book is not a comprehensive collection of what is discovered within the framework of the AS but a reference system that serves as a starting point for inquiry. Nevertheless, a principle of respect where "a previously established system of knowledge should not be discarded lightly" is in place (Chang 2004: 255). The acceptance of a previous system is necessary first because one needs some starting point in the process of inquiry. It is also based on the recognition that an established system of knowledge probably had some respectable merits that gave it a broad appeal in the first place (Chang 2004: 256). Chang's principle of respect describes the AS community's further adherence to the AS basic knowledge well. While

members of the AS community are critical as to specific characteristics, assumptions, and limits of the system, they nevertheless rely on its basic structure for their advances.

In 7th stage, local changes to the AS system may be incorporated into the AS book and become public or may travel to and disseminate between other AS researchers via traveling teachers who teach workshops internationally. In the future, new channels of information distribution might emerge, as suggested by Kira's idea of a journal. Many AS teachers have voiced the desire and demand for a more plural platform on which research findings and advances can be shared because right now, Faust, or Faust in co-authorship, remains the only visible author of AS based findings.

According to Chang, scientific progress has been made via the route of an epistemic iteration if two outcomes are present. First, enrichment of a previously existing system of knowledge as in the case of Antoine integrating scientific research from the field of neurophysiology. And second, self-correction as in the case of correcting previous assumptions in the AS book either through findings of in vivo experimentation or newly published scientific studies (Chang 2004: 228).

To conceive of Axis Syllabus research as an epistemic iteration, and, thus, as a form of epistemic achievement, helps to acknowledge the results of AS research beyond the practice's impact on individual bodyminds and the techniques that shape them. Especially for dancers and dance scholars, it can seem that knowledge needs to be embodied in specific bodyminds or objects to manifest, "to be real." Dancers and dance scholars speak in this respect, e.g., of bodies as archives. There is the desire to pin down what is achieved corporeally. Chang's epistemic iteration allows us to see that dance research epistemes are dynamic, and inclusive of manifold contributing bodyminds. Axis Syllabus as episteme emerges, is enabled, iterated and handed-

down collectively. With new researchers joining the community and disseminating AS research, this knowledge structure travels and expands. Its thus a collective achievement seeded in yet superseding individual bodyminds, structured by the social dynamics and research routines of the Axis Syllabus community.

Chapter 4: Experimental Bildung[1]: Reforming technique, forming selves

In the previous two chapters I have explored how dance researchers bring entrained perceptual and kinetic[2] techniques to conscious awareness, observe and then change those techniques.[3] This reformation of perceptual and kinetic technique is facilitated by the creative, dynamic environment of the dance studio in improvisational dance scores, both self-guided and with careful instruction. With the help of an interdisciplinary array of performance, dance, movement, education and gesture scholars, anthropologists of skill, philosophers of science and cognitive scientists, I now want to dive deeper into detailing the process of learning and unlearning technique.

Based on what has emerged from my ethnographic research, I furthermore propose a renovation of Marcel Mauss' concept of body techniques. I write of bodymind technique rather than of body technique because the learning of technique involves the integrated engagement of

[1] The German word Bildung can be translated with education, development, formation, or learning. What I am after here is a word that can describe the process growing, forming, educating, and learning in experimental open-ended dance research.

[2] Patterns pertaining to human bodily movement are commonly called sensori-motor techniques, skills or habits in psychology, neuroscience, and the cognitive sciences. With defining technique as kinetic rather than as sensori-motor, I follow dancer and philosopher of dance and movement Maxine Sheets-Johnstone. Sheets-Johnstone argues that historically, the term sensori-motor emerges from studies of the brain that aim to show commonality of brains and computers, either of the mechanical kind, like a motor, or, increasingly, operating like neural networks. Motor, so Sheets-Johnstone is not a concept that emerges from or matches the functioning of the human body and mind. Kinetic, from Greek kinēsis 'movement', from kinein 'to move', however, originates in and describes the first-person experience of movement. To me, this term appears closer aligned to the work of my interlocutors who study movement from a first-person perspective rather than mapping minds onto machines [or machines onto minds]. It thus defines more precisely the object under investigation and opens room for asking questions without being trapped in the problem space of human and machine, mind, and motor analogies. Perceptual technique is understood as a corporeal rather than purely cognitive function.

[3] There is no doubt that emotions and affects play a role in this process as well both as drivers and results of paying attention to and changing one's entrained perceptual and kinetic technique. Movement and perception can be spurred by feelings as much as influence and literally move along certain emotions. Movement can be communicative in in this sense, can be affectively expressive. Philosophers and psychologists have claimed that feelings are what arises from paying conscious attention to sensation, e.g., a beating heart is perceived as fear. Phenomenologically speaking, feelings are apprehended bodily, contextualized socially. For the sake of brevity and clarity, and as this lies outside of my field of expertise, I for now refrain from discussing the role of emotions and affects in the process of recognizing, reshaping, and creating perceptual and kinetic techniques.

kinetic (motor), perceptual, mental, and affective capacities. One of these capacities can surely take the lead or can be singled out to be researched or to be trained. Orienting along the practice of my interlocutors, my focus will be on perceptual and kinetic technique.

One aim of this chapter is to unpack what I perceive to be the black box of embodied knowledge. To me, the term 'embodied knowledge' often obscures rather than clarifies how humans ask, answer, research and come to know. When I observe how the term embodiment is used in talking and writing, there is usually a kind of object-like propositional content that is taken into an object-like body which serves as its rather passive vessel. Both objects are described as static rather than dynamic. I specifically mean the terms 'embodied' and 'embodiment' here as they suggest that something can be readily embodied, e.g., the embodiment of racism, the embodiment of culture, the embodiment of crisis, or, embodied knowledge. From this perspective, the body emerges as a mechanical instrument, something I have (*Körper*, not *Leib*) and can use to embody some kind of meaningful content, e.g., knowledge. It is separate from mind and incorporates what it is presented with (see Sheets-Johnstone 2015 for a more elaborate and detailed critique of the term embodiment). To me, the main issue with 'embodying' or 'embodiment' is, that when the term is used, it serves as a place holder for explicating how bodilymental processes of learning and forming take place and relate to systems of meaning, e.g., cultural traditions. If someone says: 'We all embody the patriarchy', the sentence is usually not followed by an explanation of how precisely bodies 'do' the patriarchy, how bodies 'know' the patriarchy.

Metaphorically speaking, I'd like to follow up the sentence, continuing projects that have defined "knowing as a practice" that we can actively observe, describe, and interpret (Farquhar 2014).

In this specific case of dance as research, I seek to understand how the learning of perceptual and kinetic techniques comes to form a distinct, and contingent pattern of human perception and movement. Such a pattern, I argue, can diversify into individual behavior and collective custom (Carlisle 2014: 14). Furthermore, I ask how several contemporary dance researchers observe, improvise, acquire, and reform the techniques that shape how they perceive and move. Put as a question: how do the dance researchers learn to take part in molding the techniques that define what they apperceive, how they move through the world, what they can do, what they can know and, maybe, even who they are? I conceive of dance research practice similarly as how Simon Shepherd reframes theatre: as "an art of bodily possibility" and "a place which exhibits what a human [...] is, what it does, what it is capable of" (cited from Spatz 2015: 12).

A second aim is to explore how human agency is seeded in dynamic and interactive being in the world. Doing so, I hope to put the cart before the horse, reaching beyond discourses that interpret and represent moving bodyminds, toward bodymind technique and schema as building blocks for meaningful interpretations and social structure.[4] Questions surrounding representationalism and body image often reify the idea of interpretive structures of meaning without which human movement remains unintelligible. The goal is not to naturalize an universal, abstract bodymind and its functioning but to learn from and speculate alongside an array of disciplines and literatures that firmly center phenomenal, dynamic first-person and collective experience as the basis from which conceptual claims emerge. From here, I propose 'knowing' as a process, organized in emerging and adapting bodymind techniques.

[4] Crossley himself notes that talk about the body is problematic as it evokes, automatically, that which is absent yet at the same time the body's counterpart, the mind, consequently reifying the dreaded Cartesian dualism (Crossley 2007: 81). I have thus altered Crossley's citation to make the body a bodymind, keeping in line with the concept of bodymind introduced in chapter two.

Below, I will consider structural and environmental constraints on individual and collective agency. Social science theories and empirical research, developmental biology, ecological approaches to perception, and psychological research all show how the socio-cultural, economic, and ecological environments in which we live influence our patterns of thinking and behaving as much as our biology. At the same time, "people are not just a passive nexus of the causal powers of culture and genes" (Ingold 2003, c.f. Roepstorff 2013: 62). The focus of this chapter is the description of how dance researchers can be, in anthropologist Andres Roepstorff's words, not just grown but growers, "living in a world where, with others, we are constantly creating novel conditions for our thinking and acting" (Roepstorff 2013: 62). From such a perspective, learning is neither understood as the smooth imitation or transmission of verbally mediated conceptual content, nor as determined by the following of social rules and norms. Rather, learning emerges as active self-formation in creative, spontaneous response to one's dynamic social and material environment (Yakhlef 2010: 410, 423).

Techniques of Perception, Movement and Action

What are perceptual and kinetic techniques? The term "techniques du corps", coined by Marcel Mauss in 1936, denotes, in a rather functionalist manner, "the ways in which from society to society men know how to use their bodies" (Mauss 1968 [1936]: 70). Mauss defined three key features of body techniques. First, he observed that the French military gait differed from that of the British military (Mauss 1968 [1936]: 71), concluding that body techniques are socio-culturally specific. Second, he observed that body techniques change and develop over time (Mauss 1968 [1936]: 71). And thus, third, he concluded that the way people use their bodies seems to be largely learned rather than evolutionary or biologically determined. According to

Mauss, apprenticeship occurs in all body techniques, even resting postures are "laboriously acquired" (Mauss, cited from Downey 2008: 205). Anthropologist Greg Downey confirms Mauss' assertions more than 70 years later when he writes: "[e]thnographic studies of sports, dance, and other physical skills strongly support Mauss's assertion, showing how techniques of the body are finely tuned and arduously sought, even though the resulting practice of the expert may appear effortless" (Downey 2008: 205, for examples of bodilymental inculcation and training see, e.g., Alter 1992, Geurts 2012, Wacquant 2003).

Although Mauss still thought of the body as object-like and separate from mind, ready to be used, his concept of body techniques was innovative in that it pulled "the physical, mental and social aspects of human being together as an irreducible whole" (Crossley 2007: 85). Naming technique as of the body, the term foregrounded the corporeal dimension of social and cultural structure. Expanding the work of Mauss, social theorists such as Michael Polanyi, Norbert Elias, Michel Foucault and especially Pierre Bourdieu further developed Mauss' ideas, emphasizing body techniques as constitutive of socio-cultural environments (Bourdieu 1977, Elias [1939] 1978, Polanyi 1966).

Central to Mauss' definition of body techniques is a fourth characteristic. In *Techniques of the Body*, Marcel Mauss argued that body techniques are incorporated unconsciously and are therefore extremely difficult for an individual to recognize or to modify (Mauss [1934] 1936).[5] This argument was carried over largely unquestioned into 20th century social theory of skill and technique. In Pierre Bourdieu's habitus theory, for example, the body is a repository of historical and cultural dispositions. Through one's actions, one thus enacts distinct cultural traditions.

[5] Although I am no expert of either Mauss, Bourdieu, Polanyi, studying their writing on technique and habit reveals what from a psychoanalytic perspective may be deemed a shallow or simplified definition of the unconscious. As a repository without location, defined as antonym to the mindful and intentional.

Habituated bodily dispositions are placed beyond the realm of conscious awareness and "therefore cannot be touched by voluntary, deliberate transformation, [and] cannot even be made explicit […]" (Bourdieu [1972] 1977: 94).[6] In a book written six years before *Outline of a Theory of Practice*, Michael Polanyi's *Tacit Dimension* (1966), we find the same conviction. Felt bodily resonance is the tacit (proximal) dimension that recedes from conscious awareness in favor of the (distal) perceived situation (see Fuchs 2017: 6 and Potter 2008: 450 for an analysis of Polanyi in this regard).[7] I don't disagree that many of our habituated bodymind techniques are carried out without conscious reflection on them. That not only pertains to seemingly uncontroversial techniques such as toothbrushing, but to bodymind techniques that carry delicate normative valence, e.g., paying attention differently to bodies of differing ability or gendered use of one's peripersonal space. However, difficulties arise when Mauss', Bourdieu's and Polanyi's theories categorically reject the conscious execution of technique.

There are principally two problems with this assumption. First, to conceptualize techniques and habits as unconscious opposes them categorically to consciousness. Yet, consciousness is where we conventionally locate things like cognition, rationality, intelligence, or knowledge. In that sense, the social theories of Mauss, Bourdieu and Polanyi endorse an

[6] In the case of Bourdieu, a problem with the idea that habitus is unconscious is that it makes of body techniques a kind of abstract, implicit structure that is independent of an individual's functioning of perception and action (Downey 2010: 29/30). In Bourdieu's description, habitus takes the form of a single homogenous, coherent system, which is simple and dualistic (e.g., female and male, light and dark, East and West in his description of a Kabyle household) (Downey 2010: 31). Such a description resembles a structural analysis and not the description of the uneven and time-consuming, sometimes unsuccessful, and sometimes surprising learning journey of a new technique, which differs neurologically and socially from person to person (Downey 2010: 32). Observing Capoeira practitioners, Downey thus suggests that technique learning is not a smooth internalization or transmission of a stable cultural structure, e.g., the gait of the French military (Downey 2010: 36). Rather, the learning of technique is "the patient transformation of the novice, the change of his or her muscles, attention patterns, motor control, neurological systems, emotional reactions, interaction patterns, and top-down self-management techniques" (Downey 2010: 36).

[7] In much of the psychology, cognitive science and the neuroscience research, habit is similarly described as automatic and unconscious. Habitual movement patterns are opposed to goal-directed actions (Dickinson 1985). This definition is largely inherited (yet altered) from William James' notion of habit (Bernacer/Murillo 2014). However, recent philosophy of cognitive science tries to dismantle this argument.

outdated body-mind dualism, with the bodily as automatic and unconscious on one side, and the mental as conscious, cerebral, and conceptual on the other. In this schema, the capacity to act is held by the mind, 'using' a body.

Second, and central to my following argument, their body-mind dualism benefits a structural determinism in which culture and history inscribe themselves top-down into body techniques which are out of conscious reach—and thus the inscription can't be detected or resisted easily. If, as Mauss claimed, socio-cultural traditions determine body techniques, individual and collective behavior, emergent in our patterned techniques, is the reproduction of cultural heritage—nothing more and nothing less. Here, structural overdetermination piggybacks on body-mind dualism's passive bodies.[8] The result is that there is little room for variation, novelty, error, or discontinuity for both the learned technique in particular instantiations and the learning subject in individual experiences.

If a person is conceptualized as unable to access the organization of her body techniques consciously and intentionally while history and culture (re)enact themselves through and in her technique, there seems little room left for specific forms of individually or collectively altering and learning technique, which, in turn, manifest in individual or collective action. The potential for this kind of conscious, individual, or collective interference is lost in the common supposition of Mauss, Bourdieu, and Polanyi that body techniques remain beyond conscious grasp or recede immediately into the unconscious once learned.[9] I thus propose to reformulate Mauss' initial definition of technique, accounting for the problems outlined above.

---

[8] The critique of structural overdetermination has been levelled, amongst others, against Bourdieu (King 2000, Lovell 2000, Fuchs 2017) and Foucault (Grosz 1994: 122; Shilling 1993: 80; Butler 1999; Blackman 2008: 28).
[9] I don't mean to devalue body techniques by describing them as unconscious. In contrast, I believe that they are powerful in organizing our everyday life and actions as they become habituated and precisely because of this it is interesting to observe how they are learned and can be re-learned. I do however think that Mauss, Bourdieu and

The movement research dancers of the ISSC and the Axis Syllabus with whom I have worked over the last years conceive of techniques more akin to Aristotle's definition of habit. In the *Nicomachean Ethics*, Aristotle describes habits as dispositions, i.e., particular arrangements of human capacities (Bernacer/Murillo 2014: 4). Habits are acquired and discarded, adopted, and refined because of one's learning about one's action in the world. Through education and training, people hone and shape their capabilities toward definitive ends. Importantly, this process is intentional: it involves bodily as much as cognitive capacity (Bernacer/Murillo 2014: 4). If translated into the conceptual context of kinetic and perceptual techniques as patterned, trained practices that involve the human bodymind, Aristotle's view suggests a plasticity of these techniques. As the anthropologist of religion Talal Asad has put it: "the human body[and I would add mind] is not to be viewed simply as the passive recipient of 'cultural imprints,' still less the sources of 'natural expressions' that are 'clothed in local history and culture,' but as the self-developable means for achieving a range of human objects—from styles of physical movement [for example, walking], through modes of emotional being [for example, composure] to kinds of spiritual experience [for example, mystical states]" (Asad 1997: 48).

The view of the dancers that kinetic and perceptual technique remains malleable throughout the life cycle and that their condition is a question of curiosity and training is supported by recent research in psychology. Phenomenological psychologist Thomas Fuchs, for example, writes that the realization of kinetic techniques "is not a subpersonal process but is open to modifications or even explicit changes by the subject" (Fuchs 2017: 14). Following this, I extend Mauss' body techniques, re-naming them as bodymind techniques and theoretically

Polanyi all operated within a paradigm of bodymind dualism and their idea of techniques as inscribing themselves unconsciously into bodies works only with a concept of body as object. Describing bodies as unconscious is a strategy that benefits structural determinism.

undergirding them with the practical insight of my interlocutors that perceptual and kinetic techniques can be actively observed, changed, learned, and innovated.

When I first discovered Marcel Mauss' idea of body techniques, through the work of Talal Asad,[10] I was thrilled to learn that there was a theorist who had found a way to describe how bodily moving and acting partakes in producing systems of meaning. Yet as I dove further into thinking with body techniques, I inevitably discovered the baggage that came with them: the body-mind dualism of Mauss' time and the tendency to determinism, which may be a reason of why we hear not much of it today. Nevertheless, I thought Mauss' concept could be renovated fruitfully in the context of creative research and learning of bodilymental technique. A realm, where Mauss' central claim, namely that techniques are productive, remains valid, yet where assumptions about body, mind, structure, and power can be viewed in a new light. A specific aim is to show, then, that bodymind techniques do not only vary from society to society, but from individual to individual, and from community of practice to community of practice. Moreover, specifically those people that practice a bodymind technique intentionally, have a range of physicalmental methods and tools to shape the techniques that pattern their personhood.

Because training the dance researcher's perceptual and kinetic techniques are "pursued intentionally through specialized training in adolescence or adulthood [it thus] contrasts in many ways with the (to the practitioner, at least) unremarkable daily habits and gestures that make up the habitus" (Downey 2008: 22/23). Thus, the question whether the analysis of intentional expert technique can tell us something about mundane, habituated technique begs an answer.[11] While

[10] Many thanks go to Hussein Agrama here.

[11] Ideomotor theory of movement and neurological evidence suggest an uneven transformation of individual learners of a given technique that is highly idiosyncratic and often spontaneous (Downey 2010:33). Individual habitus thus consists of specific perceptual-motor skills and bodily changes that are different from learner to learner. Everyday automatic activity such as toothbrushing is "among the poorest candidates for a unifying treatment" under the name

expert techniques are, in a way, easier to study than mundane techniques, because they are actively marked and consciously reflected upon in designated spaces, I propose that they formally do not differ from mundane technique. What differentiates them from, and at the same time binds them to mundane technique as mundane technique's demarcated opposite, is that they are put into an environment which is designed to function like a magnifying glass.

Anthropologist Greg Downey describes his field site, a Capoeira studio, as such an environment where "bodily learning can bring to conscious light some of the movement traits, postures, and tendencies that may have once been unconscious, but become problematized in transformative apprenticeship" (Downey 2010: 27). As we have seen in the previous chapters, both ISSC improvisation scores and Axis Syllabus research classes provide a comparable environment.

With anthropologist of dance Brenda Farnell, I contend that subjectivity and intersubjective domains consist of the sum of bodymind techniques present in an individual and their community and reach from mundane to specialized (Farnell 1999: 343). A given kinetic technique for example, say a breaststroke, can change status from mundane to expert. And if a bodymind technique is carried out on an expert level, it can be intentionally observed and altered. Nevertheless, there is a difference between mundane and expert technique. While innovation of technique usually happens by accident in the continuous carrying out of a mundane technique, it is actively sought out through exploratory, creative, and playful scores in expert dance research practice, often yet not always with the aim to upgrade expert technique.

of a culturally yet not individually specific habitus (Downey 2010: 34). To combine individually differing training, kinetic and perceptual techniques into a single, homogenous structuring structure would overlook discontinuity, complexity, and individual difference.

Renovating Bodymind Technique

How does a reformulation of Mauss' notion of body technique that draws on ethnographic research and current social and natural scientific literature look? Below, I'll propose technique to be conscious, intentional, relational, and creative, and, in the case of the field research for this dissertation, as particularly consisting of an interplay of perceptual and kinetic elements.[12] Let's consider all these adjectives one after the other.

Perceptual and kinetic technique

From what I have observed, most bodymind techniques that my interlocutors learn, unlearn, and invent in dance research can be specified as perceptual and kinetic techniques. With this, I mean specific ways in which their sense perception and movement is organized and enacted.[13] Accordingly, perceptual technique organizes how sense perception is organized. From such a perspective, sense perception is not understood as a representational process, as in many traditional and psychological theories of mind, but is instead a sensorimotor skill that is enacted (Noë 2004 and 2009). What we apperceive is shaped by the way in which our perceptual technique is trained. There are different ways of seeing, hearing, and reading the world (Crossley 2007: 91, see also Howes 1991 and 2014).

The dance researchers I work with understand senses to function in relation to each other. They experience the traditional five senses as closely cued to the senses of movement

[12] That does not mean that other elements are not present. Yet the way the dance research space is marked is to shine the light on observing, exploring and altering perceptual and kinetic technique.
[13] It may be that these techniques come with specific affective or emotional techniques. Certainly, perceptual, and kinetic techniques are related to affective or emotive technique. Yet since these are explicitly not the focus of my interlocutors, I have decided to leave them out for now. In a sense, my interlocutor's focus helps me to keep my research question slim enough to say something meaningful. I think if I brought in affective and emotive technique, things would get to complex too quickly. However, I'd be very interested to focus further research on the interplay of various bodymind techniques, including affective and emotive technique.

(proprioception, interoception, exteroception, kinesthesis) and movement itself. Dance researchers most commonly work with their kinesthetic sense, their sense of touch and their visual sense as techniques that can be trained. A change in other registers of sense perception, e.g., hearing or smelling, can be a result of altered kinetic or perceptual technique but is usually not actively trained or altered.

Movement is the more visible and thus, literally, obvious technique. Kinetic technique refers to how body movement is organized and patterned. How one walks, runs, crawls, turns is actively trained and differs across individuals and communities of practice. Kinetic technique, especially of mundane rather than expert movements, can be so sedimented, so well trained, that it appears natural (Spatz 2015: 188). Gendered kinetic technique is an apt example. In her groundbreaking 1980 essay "Throwing like a Girl", UChicago political philosopher Iris Marion Young describes how gendered kinetic techniques, for example a style of holding the arms close to the body or across the chest, typically associated with female comportment, or the wide swinging of arms next to the body, thus enlarging the peripersonal space of the swinger and typically associated with male comportment, are so deeply entrained that they are mistaken for physiological inevitability (Young 1980, Spatz 2015: 188).

Finally, perceptual, and kinetic technique function in relation to one another. As kinetic techniques are altered, techniques of perception are adapted as well. To be an active perceiver, one senses the impact of one's own environmental or relational movement on perception. Similarly, one can observe how a conscious change in perception alters one's movement. In the sciences of perception and cognition, the brain's sensory and motor systems have historically been studied as separate from each other. The "sensory system is considered the point of input, processing environmental stimulation, while the motor system is considered the point of output,

generating reactions to environmental stimulation" (Fiebelkorn and Kastner 2019, cited from Abrahamson/Mechsner 2022: 1832). Based on my research, I propose that kinetic and perceptual technique are functionally integrated and should be studied as such. I know this is difficult in the world as much as in the laboratory. But I think it is essential if we consider Abrahamson's and Mechsner's hypothesis that perception and motion do not only function but develop together. As "infants/toddlers mature, they develop more and more sorts of actions, e.g., from crawling to walking. Novel action possibilities stimulate new perceptual structures which in turn can be used to control action" (Abrahamson/Mechsner 2022: 1832). Without active movement, sensory development may even be disturbed (Abrahamson/Mechsner 2022: 1832).

Psychologist Eleanor Gibson specified, on the example of early childhood learning, that exploratory activity, the kind of open-ended hunt for discovery, in which the dance researchers are involved as well, is where perception and action are "rolled into one—a perceptual search, embodied in information seeking action" (Gibson 1991: 600). It is this integration of perception and action in motion that particularly sparked my interest in the dancer's research and training practice.

Conscious Technique

In the previous two chapters, the dance researchers of the ISSC and the Axis Syllabus have shown how they observe, change, and invent new techniques with conscious awareness. Other ethnographies of apprenticeship and entrainment confirm my own observation that technique learning is partially conscious (Wacquant 2006, Geurts 2002). Ethnographic insight from studying Capoeira practitioners and their mestre shows, for example, the conscious expert guidance of teachers in facilitating the learning of technique. "[T]eachers 'scaffold' students'

imitation with diverse techniques that reveal sophisticated practical awareness of how to facilitate mimesis" (Downey 2010: 26, emphasis mine).

Following I support the claim that bodymind techniques can be conscious, especially in the moments where they are actively trained, observed, altered, or invented, from a theoretical perspective. For this, I draw on the work of philosopher of cognitive science Ellen Fridland who I think does a great job explaining how even something that we may perceive to be automatic or habituated is in fact open conscious control. Fridland is concerned with what she terms 'skilled activity', for example playing tennis. While there are subtle differences, I propose to adapt her theorizing of skill to my theorizing of bodymind technique, and to perceptual and kinetic technique in specific.[14]

To Fridland, skilled action is a species of intentional action: "That is, it is an action that the agent performs for reasons or on purpose or with some intention" (Fridland 2014: 4). Because agents can perform actions, e.g., a kinetic technique in controlled ways, they can adapt them to the varying circumstances in which they perform (Fridland 2014: 4). Fridland proposes to measure the level of skill of a particular action by an agent's ability to control smooth execution of the action, as well as by the ability to respond to both expected and unpredictable environmental circumstances and to adapt her strategy accordingly (Fridland 2014: 5). On this account, Fridland's main proposition is that to give an adequate definition of skill, or, in parallel, technique, we must detail the "controlled part of skilled action; that is, that part of an action that accounts for the exact, nuanced ways in which a skilled performer modifies, adjusts, revises, and

[14] Fridland describes motor skill's conventional definition as "a hybrid phenomenon composed of a cognitive component and a motor component. The cognitive component is usually cashed out in terms of propositional knowledge or intentional states and the motor component is construed in terms of automatic, low-level, causal processes, which are acquired through brute repetition" (Fridland 2017: 1540). This cognitive science definition squares surprisingly well with the dualist definitions of Mauss' body techniques and Bourdieu's habitus which both harbor an unconscious, automatic physical part, and a homogenous, structured, cultural system (a technique or a habitus).

guides her performance" (Fridland 2014: 5). If control over skills increases with expertise, so Fridland, "then one should expect that an expert would be able to intervene, interfere, and inhibit an automatic motor process at almost any point in its unfolding" (Fridland 2017: 1550).15 Anthropologist, Gregory Bateson, made a similar argument, when he wrote that although we don't know fully what and why we become conscious of, one important role of being conscious of something is that it allows you to "get quickly at what you want" (Bateson 2000: 439). In other words: "[consciousness] is organized in terms of purpose" (Bateson 2000: 439). In ethnographically attending to the practical detail of how dance researchers learn to control entrained bodymind technique, observing and altering it, an ability they have qua their profession as experts of professional dance, we can add detail to what it means that a technique is consciously controlled.

As Mauss and Bourdieu and select cognitive science accounts suggest, body techniques come in the form of a relatively stable, socio-culturally determined object-like structure. However, as Fridland shows, this prediction does not square with the fact that kinetic technique, or movement more generally, is variable (Haith and Krakauer 2013, cited from Fridland 2017: 1551). Trained kinetic technique, e.g., shooting a hoop, "exhibits a significant amount of variability when instantiated on different occasions" (Fridland 2017: 1551).

That's the interesting part of technique: Anna has the same goal as Nita in performing the perceptual technique of attending only to empty space and not to moving dancers as one moves. Yet while the goal is the same, the coordinative details of execution of that goal vary across

15 'Automatic motor process would be the cognitive science equivalent to habituated and unconscious kinetic technique. Many cognitive scientists, reflecting the economic and social theories of their time, eschew the term 'unconscious' or aim to replace it with terms such as automatic and implicit. This is motivated from a place where no empirical, organic evidence for 'the unconscious' can be found yet cognitive scientists aim to map their theories on the brain's functional anatomy. To complicate the matter, the functional anatomy of the human brain is a product of history and thus is in flux as new research emerges (see, e.g., Haueis 2021).

instances and individuals. With Mauss and Bourdieu, we would expect that the best way to do well in attending to empty space is to incorporate a general technique of perception that is intentionally or unintentionally taught and received. To execute the same movements we did last time, to a degree where we have done a specific motion so often that we can execute those very movements reflex-like. Mauss and Bourdieu would suggest that once habituated, a technique sediments in us as a kind of cultural code. But it turns out that this is not how human perception and action seem to work (Fridland 2017: 1552). In fact, the opposite seems true: kinetic "variability is the best way to take advantage of the degrees of freedom afforded by a largely redundant, noisy, motor system that can achieve any motor goal in a large variety of ways by modifying variables such as force, acceleration, angle, or joint position during movement. Accordingly, we see that even in practiced sporting skills, the kinematic details of movements are not precisely repeated in fixed ways but retain a fair amount of variability and flexibility" (Fridland 2017: 1552). Thus, skillful execution of a perceptual technique, e.g., how Anna directs her attention, is controlled. Anna can respond and adjust the proposed score, attending to empty space, to her own dynamic physicalmental condition and her environment, maybe presenting her with unexpected circumstances, in a flexible manner. The more Anna trains in directing her attention, the more she should be able to consciously troubleshoot and adjust her execution.

How does control square with flexibility here? The idea, supported by cognitive science research, is that one can flexibly control and adjust one's perceptual and kinetic technique insofar as adjustments are not made to fit a pre-determined trajectory but to achieve a goal or task under varying and changing conditions (Fridland 2017: 1555). In flexibly reacting to changing bodilymental states or environments when performing the perceptual technique of

directing her attention, Anna's "motor control system16 differentiates what is and is not relevant for achieving task success by being directly responsive to higher-order, personal-level goals" (Fridland 2017: 1556). Thus, Anna's motor control, which coordinates and executes perceptual and kinetic techniques, is "itself sensitive to the content of intentional states" rather than executing a predetermined own or given strategy (Fridland 1556). Control over how one adapts one's technique is thus intentional all the way down in that even motor control, which is commonly assumed to be unconscious and automatic, is part of an intentional response that varies in each instantiation of executing a specific technique.

The presupposition of Fridland, in accordance with cognitive science literature would be that the organic analogue to intention is neuronal activity in the brain. But what if conscious mind stretches through our nervous system and into our feet? Recall Antoine's example of the neurophysiology of reflexes, which are put in action so fast that there is no time to travel up to the brain. More generally, if we aim to assign a kind of consciousness to bodymind technique, in this case to perceptual and kinetic technique, while consciousness is what is still identified with mind and brain, reason and thought, we are putting pressure on that very initial distinction between automatic body techniques and intentional minds as brains.

[16] Motor control system refers to the material structure in humans that are responsible for purposeful voluntary movement in coordination with an individual's bodily capacity and environment. While the field of research on motor control is young, the physical structures in which motor control is located at the moment, are the brain, the spinal cord and the nerves. As mentioned earlier, philosopher of dance and embodied cognition Maxine Sheets-Johnstohne despises the term for it likens the way humans work to motors. Sheets-Johnstone here points to the larger issue that the normative presuppositions that undergird cognitive science research remain largely not addressed within the research community itself. Take for example the citations by Ellen Fridland on this page, which implicitly presuppose that humans as individuals aim to achieve personal level goals through achieving task success. As a philosopher of science, it may be that Fridland employs this language as the scientists she studies employ it as well. Differing language ideologies are, in my experience, one of the hardest barriers in establishing successful interdisciplinary collaboration. It may as well be that the cognitive scientist's assumptions square with Fridland's or seep in slowly, through being steeped in the discourse.

Intentional Technique

In calling technique intentional, my aim is twofold. First, from a traditional outlook on intention as deliberate will, I acknowledge that dance researchers purposefully choose to observe, change, and invent body technique. But what happens to intentionality after the goal is set? I propose, second, to understand technique as unfolding itself intentionally in a dynamic process. By this I mean that while dance researchers may begin their research with an initial set goal, the energy and determination necessary to reach the goal are distributed across and arise from the physicalmental process of engaging in technique. In the second sense, I thus propose to think intentional agency as extending beyond the mind and into the moving, perceiving and feeling body enacting and learning technique (Spatz 2015: 54).

What can distributed intentionality look like? The interdisciplinary field of 4E cognition (embodied, embedded, enactive, extended) theorizes self-formation through education and the change of learned patterns as enactive (Abrahamson/Mechsner 2022). Enactivism, the idea that through active organization one enacts oneself, goes back to the idea of autopoiesis, (from Greek αὐτο- (auto-) 'self', and ποίησις (poiesis) 'creation, production'). The term was coined by biologists Francisco Varela and Humberto Maturana in their 1972 publication Autopoiesis and Cognition, which has been interpreted as part of cybernetics and systems theory and has been taken up by biologists, sociologists, philosophers, and cognitive scientists. Maturana and Varela defined autopoiesis as "a system capable of producing and maintaining itself by creating its own parts"17, in their example, the material self-production and maintenance of a single cell. The concept was then adapted to explain various organizational and living systems, among them

[17] https://www.oxfordreference.com/display/10.1093/oi/authority.20110803095436328;jsessionid=D587AF10AB06075F2329CC4DEA89EF01 (last accessed 02/20/2023).

human individuals. Anthropologist and historian of science Josh Berson, for example, describes the maintenance of selfhood as enactive: “The interface between self and nonself is not something simply given, it must be actively achieved, and it changes over time — but it is there, in fact, the ongoing regeneration of a boundary between body and world is constitutive of the principle of configuration that makes a body a body“ (Berson 2015: 7). Importantly, autopoietic systems do not only self-enact but to do so, they are in constant exchange with their environment via a semipermeable membrane and that exchange enacts self and environment. We must be able to distinguish between the two, and they exist in generative interdependence. What Maturana and Varela proposed, and what 4E cognitive scientists took up, was the idea that this kind of interactive self-formation is the basis for cognition. Thus, it would be an oversimplification to locate cognition solely in the brain.

The take-away in the context of this argument is to undergird the second definition of intentional that I have proposed above. When I say technique is intentional, I do not mean that it is willed by an autonomous rational individual, that forms a plan to reach a goal which is then executed top down, from brain to hand, from cognition to action. Rather, I propose that in exchange with, inspiration by, and adaptation to the social and ecological circumstances one finds themselves in, techniques dynamically adapt and reform—and thus reform ourselves. Philosopher of mind Hubert Dreyfus has called this kind of non-cognitive intentionality ”skillful coping” with one’s environment. Drawing on Merleau-Ponty, the process of a person extending their bodymind capacities into their material and social environments to sustain body-environment equilibrium (Yakhlef 2010: 424) has been coined an "intentional arc” by Dreyfus (Dreyfus 2014). Our actions are solicited by the world we are enmeshed in and as we act, the

worlds around us transform. In training technique, we train distributed intentionality, rooted in bodilymental, dynamic engagement.

Furthermore, scholars of intercorporeal phenomenology add to Dreyfus' definition of non-cognitive intentionality that intentionality, when understood as not exclusively mental, can be shared. Fellow dancers are not just environmental factors soliciting responses. Especially in ensemble practice, dancers' practical intentionality, enacted through shared patterns of perception and movement, can span across individuals as interactive intentionality in movement. (Fuchs and de Jaegher 2009, 476). To understand shared, interactive intentionality in more detail, I propose phenomenological interviews with collectives that move together as a next project.

While Mauss may have called body techniques intentional, I think he would have located their purposeful meaning and direction, i.e., their intentionality, in technique itself as a cultural, meaningful, and determinate system that inscribes itself into less intentional bodies. If we conceptualize intentionality as enacted in the unfolding of an individually or jointly explored technique, it must not be pre-determined top-down. Rather, to stay intentional in a dynamic world full of difference, bodymind technique relies on individual and collective variation and situational challenges to adapt and develop. The way that dancers vary in how they learn and enact a similar goal, e.g., an agreed upon technique (more on that later) is essential not only to keep a technique flexible and thus reliable as functioning. It is furthermore essential to individual dancer's personhood, whose idiosyncrasy is brushed over if all bodyminds are habituated homogenously into the same technique. Change and innovation of a technique, which must be introduced, feed on individually and collectively different enactments of and active engagement with a bodymind technique.

Relational Technique

'What about structural constraints in all this self-formation,' you may have asked yourself over the last few pages? What about social norms, cultural systems, and economic pressures? The classical modern dualism of normative protocols and practices reproducing society and constraining or overriding free will on the one hand side, and Enlightenment's rationalist individual agency on the other hand side prompts this question. This dualism has been reinforced sharply throughout 20th century social theory. Is there a way to surmount the structure versus agency debate from a biosocial perspective, taking both socio-cultural and natural-scientific arguments into account?

Going forward, I propose to conceptualize bodymind techniques as embedded into their respective environments, in which they are changed by as much as change these environments. From this perspective, techniques are neither socially determined (by rules or norms), nor created in a vacuum by self-determining subjects. Since person-environment connections are constantly shifting, learning is the continuous process of purposefully adapting one's techniques. For example, think about how you adjust your gait after a knee injury and then laboriously adjust back with the help of a physio after the knee has healed.

Such adaptation of bodymind techniques transforms both the learner and the situation at various scales. On a physical level, techniques are constrained by the material and functional limits of human bodies. Yet nevertheless, their training can shift these limits and result in measurable organic changes, a point I discuss further below.

Bodymind techniques respond to their immediate biosocial environments. Jumping high up, for example, will be carried out differently on a large lawn with nobody around than in a small dance studio with ten other dancers on the floor. Philosopher of dance Erin Manning has

put it this way: “[O]ne cannot separate the question of what a body can do from the milieu in which it dwells in relation with others” (Manning 2016: 10).

On the socio-cultural level, we can observe that there are manifold ways in which specific social worlds, for example regionally bound or professional communities shape and are shaped by individually and collectively enacted bodymind technique. As Ben Spatz writes, aptly: “Processes of socialization and enculturation induct us into an epistemic world that preexists us, and much of what we learn involves how to reproduce society in its current form” (Spatz 2015: 52). Think of factory gymnastics to boost productivity in large US car factories in the mid-20th century (Schwartz 1992) and of the normativity of balance and gait of the Anlo-Ewe in Ghana (Geurts 2002). Think of table manners (Elias 1939), of Chicago South Siders who train how to be streetwise in the boxing gym (Wacquant 1995); think of gendered comportment (Young 1980) and, overall, the performance of gender (Butler 1990).

Importantly, the training in bodymind techniques we each receive reflects not only cultural variability and continuity but “the social hierarchies that determine how this knowledge is distributed” (Spatz 2015: 34). The way we train and what we train in is itself culturally organized—by politics of race, class, gender, and ability. The unequal access to specific bodymind techniques results in “inequality bodies” (Wiedemann 2023). Differently trained bodies are the literal material that forms and holds a particular cultural or economic schema, for example, of economic inequality or structural racism. In that regard, we can characterize the dance research space, as I have done in the previous chapters, as a predominantly white, able-bodied space, mixed in gender, with a largely middle-class background, which conditions the choice of an occupation as precarious as professional dancer. It is a space of intentional training

in expert technique that is different from yet can also inform mundane training in bodymind technique.

Simultaneously, and as I have described with Spatz on the example of gender, bodymind techniques and their habituation promote what we understand as meaningful abstractions, or as states of mind: virtues, values, morals and conceptual beliefs (compare to Bateson [1972] 2000: 163, 165. For Bateson, these would specifically be habits of mind in this case, e.g., 'free will' as a habit of mind).

Creative Technique

What differentiates the dance research space most strongly from an environment in which technique research and learning are not the central focus of the practice is the aim to experiment with, generate, create, and invent new technique. Bodymind technique may be changed and thus further developed in ordinary movement as well, for example, when I adapt how I position my feet and how much pressure I put on the pedals after I got a new bike. Bodymind technique may even be intentionally invented, for example in physical rehabilitation, when patient and therapist deliberate about and try out a replacement for a technique that has caused pain previously. Yet, the focus of these practices is not to invent technique. In contrast, in the dance research space, a deliberate environment is prepared so that new techniques can emerge out of the manifold that improvisation creates and can then be selected and probed.

The dance research space is intentionally prepared and realized as an experimental space that makes room for invention. When I write that the space is prepared it means that the studio is set up to usually be free of distraction such as mirrors or props, that lighting is adjusted and that the sound environment is deliberately chosen, either there is complete silence or specific music, live or stereo. Second, it means that dance researchers are guided into the improvisation by

expert teachers who know how to methodologically eacilitate an environment in which dance researchers can explore and improvise creatively.

Improvisation can feel fun and carefree, and it can feel like laborious searching for something unknown. It's a gamble and one needs to be ready to invest and still not find anything. The question guiding the search, in Spatz's words, is Spinozist: "What can a body do?" (Spatz 2015: 4). Yet doing does not necessarily mean to will something or to make something happen. It rather means to be wide awake, perceptually, and kinetically responsive to emergence. Sometimes, it seems that the whole job is to be able to facilitate an environment ripe with anticipation yet no expectation. What will emerge is, at least partially, unknowable. Extending what we think to be the realm of possible bodymind technique, stretching the territory of how we can move and apperceive, and to what ends.

In the ethnographic chapters, we have encountered scores to guide this endeavor. Remember, for example, how Nita devises scores to direct the attention of inexperienced dancers when they cannot direct their attention by themselves. When the dancers become more versed in directing their attention, she sets up scores where they need to employ a specific attentional technique before she guides them into territory where they can have experiences that are surprising and revelatory.

This creative hunt for emergence is a mix of training—learning methods which support the finding of new technique, researching—exploring, investigating, probing, and developing new technique and I would add, patience (Spatz 2015: 60). Newfound surprising elements are singled out and probed, some turn out to not be patterned enough, to not hold up reliably enough to form an actual technique. Some turn out to be viable pathways, shared with others so they can be tried out in a group.

In a dance research environment, alteration in bodymind technique does not have to serve a functional goal, for example, getting somebody to use their computer without pain again. In the words of philosopher of dance Einav Schmid, dance research is thus "a generator of possibilities rather than necessities" (Schmid 2016: 144).

In being experimental, exploratory, and open-ended, dance research can be characterized as a form of play. On the one hand there is a demarcated space with directions given; in the case of dance research, its usually a score. On the other hand, dance researchers have seemingly inexhaustible opportunities for creation (compare to Goppelsröder/Rautzenberg 2006: 7). For philosophers Fabian Goppelsröder and Markus Rautzenberg, play is the prerequisite for the possibility of emergence (Goppelsröder/Rautzenberg 2006: 5). The point that play can never fully be made useful is what allows for the possibility of emergence of new bodymind technique. Continuous exploration in movement generates new bodymind technique.

Within a playful environment, one can also gain experience and confidence in handling the unknown. If you've had a protected environment in which you practiced playing with an unexpected experience or emergence, be it a drastic change in your own kinetic technique and its consequences or a situational challenge, you can take that experience out of the dance studio. I often perceive professional dancers as flexible and adaptive in responding to everyday dynamics of life. I don't mean they are flexible in a neoliberal kind of uninterrupted, exhaustive availability, proving themselves worthy through constant self-realization at work and at home. The dance researcher's flexibility—although they are of course not free from the capitalist work ethic and often feel they don't work enough or their work is undervalued—looks more like a strategy game, lightly catching what's being thrown at them or moving quickly to the side to

dodge a hit. In sum, new technique emerges in playful, exploratory, improvisational practice and environments.

Interlude: Constancy and Change

I have argued so far that bodymind techniques are more flexible than Mauss' initial definition and related concepts such as Bourdieu's habitus or terms like implicit or embodied knowledge suggest. Yet nevertheless, if bodymind techniques are to work as a concept that can be applied across a range of empirical contexts, there must be something that remains the same across time, spaces, and individuals. How durable is the patterning of techniques if they are flexibly adopted in constant exchange with their dynamic environments?

I propose that there is an equilibrium between receptivity and resistance to change in a specific bodymind technique. A limit to change is crucial in that if one's techniques were infinitely flexible, we would not be able to keep a score, e.g., learn how to cut with a sharp knife, perform a cartwheel and so on. On the example of habit, philosopher Clare Carlisle goes as far as to suggest that if we were incapable of reliable, repeatable behavior, we would have no character or no integrity to call our own (Carlisle 2014: 21). She therefore suggests the notion of plasticity, a materiality and modality that can hold its form as well as take on a new form, to characterize habit (Carlisle 2014: 21).

If we transpose Carlisle's thought onto bodymind techniques, it means that techniques need to be patterned to such a degree that they ensure continuity in their function to contribute to what makes up a person's identity (Carlisle 2014: 17). In the words of systems thinkers such as

Berson, Maturana and Varela, it would mean that bodymind techniques need to be stable enough to ensure the integrity of personhood.[18]

Yet, stability is not constancy. It is guaranteed by ongoing recalibration with one's environment in a purposeful, creative interaction (Berson 2015: 11). One concrete limit to receptivity is the temporality of individual bodyminds. Once a bodymind technique is deeply sedimented into a particular person, to a point where there is absolute control although the activity feels mindless (think of the coordinative effort of driving a car for hours), it is very difficult to get rid of said technique. Bessel van der Kolk thus describes the body as "keeping the score", on the example of bodymind techniques developed in response to traumatic experiences (van der Kolk 2015).19

Another element that guarantees stability is the "relative reliability of material reality" (Spatz 2015: 42). Ben Spatz suggests that "[t]echnique consists of discoveries about specific material possibilities that can be repeated with some degree of reliability, so that what works in one context may also work in another" (Spatz 2015: 42). However, Spatz cautions us to remember that this reliability is never more than relative, that we are often surprised by the inconsistency of material reality to which we must adjust.

[18] My aim here is not to say that all we are made of as specific people, as specific characters, are bodymind techniques. What it means to be a person has and will vary throughout history. I am more interested in thinking about the role of bodymind technique in constituting distinct subjects. To illustrate: If I want to describe how I am different than my brother, I'd say things like: "He is more funny, he is shorter and he is more impatient than I am." If bodymind techniques play a role in constituting personhood, a description of my brother could be: "He is a professional wheel chair rider with unusual coordinative skills, is proficient in reliably getting others affectively engaged, and his attention is trained on the speed of computer games whose names I don't know."

[19] Some anthropologists of dance and performance and philosophers of mind of the representationalist genre describe this kind of sedimentation of technique as memory. For example, Einav Katan argues that body techniques are a kind of procedural memory and as such, are a form of embodied knowledge (Katan 2016: 78). I think bringing in terms like memory and knowledge does not help to describe technique, because both terms are evoking forms of knowing that where knowledge takes the shape of a delineated and definite proposition. Thus, terms like knowledge and memory trap us into conceptualizing learning and knowing and remembering within a paradigm that has been proven outdated and needs to be updated.

To exemplify the principle of mutual constancy and change of technique, I suggest following Spatz' analysis of gender as bodymind technique. Gender manifests as real because it is learned and trained from birth onwards, sedimenting deeply into the patterning of our bodyminds (Spatz 2015: 198). Gender as bodymind technique shapes our everyday practices and our material being, the way we move our bodies, the size our feet can take, the way we dream, fantasize, feel inadequate, resistant, or failing. It's a technique trained from so early that it is very difficult to unlearn as it structures and lends continuity to our material, affective and social being. At the same time, just like the acquisition of language, gender as bodymind technique is actively achieved. And precisely the practices and tools of this active engagement can be used to grapple with one's sedimented gender techniques (Spatz 2015: 200).

Technique learning

To understand how bodymind technique is learned, paying close attention to teaching is crucial. It is in the moment of teaching a technique that I can observe how a technique is shown, communicated, and taught by a teacher and how the uptake of that technique is coordinated by the student.[20] Actively learning a bodymind technique, changing deeply sedimented techniques—how is this done? Below, I'll theorize technique learning as exploratory and investigative. In dance research, learning is a form of curious inquiry into one's own patterning, with the help of expert teachers, research scores and experimental set-ups. If learning as a process of reshaping bodymind technique is a process of "incorporating and absorbing new competencies [...] into our body schema", what does this look like in detail (Yakhlef 2010: 409)? If the learning of

[20] Marcel Mauss thus proposed teaching practice as the focus of study if one is to analyze body techniques (Crossley 2007: 88).

bodymind technique in dance research practice is "not simply the 'embodiment' of knowledge, but rather physical, neurological, perceptual, and behavioral change of the individual subject", how is this change facilitated and accomplished (Downey 2010: 35)?

As described earlier in the ethnographic chapters, research does not lead to propositional facts, although these can be a welcome side effect, but to new bodymind techniques and newly patterned bodyminds.[21] How does altering bodymind techniques play a role in what a person can learn and what a person can do?

Dance research and learning usually begin with observing. Dance researchers are experts in turning their attention toward their own bodily being and doing, interocepting, proprioceptive[22] and exterocepting with the goal of singling out feedback specific to one perceptual or kinetic technique that is under investigation. They note the patterning and tempo of specific techniques, for example how they raise an arm and its effects on other parts of their own musculoskeletal system and on other dance researchers or companions[23] with whom they may be researching. Philosopher of mind Claire Carlisle suggests that reflexivity, this kind of noting the patterning of one's own bodymind technique is something distinctively human (Carlisle 2014: 15).

[21] The philosopher Einav Katan describes the dance style of Gaga very similarly to how I describe movement research. Gaga, to her, is the research of movement possibilities and with this comes the reformation of the dancers physical and cognitive habitus (Katan 2016: 27).

[22] Einav Katan has an excellent definition of proprioception: "The neuropsychologist Charles Scott Sherrington coined the term proprioception for the sensual awareness of movement within the body. As a bodily sense it is responsible for feeling the relative positions of neighboring body parts, and how their strength and effort are engaged through motion. Thus, proprioception is bodily awareness of movement that is derived from muscles, tendons, and articular sources, as they are related to each other" (Katan 2015: 64).

[23] In lockdown, dance researchers working alone at home would perceive and describe resonance with their natural environment, with plants, bodies of water or pets. As they were experimenting with changing a specific body technique, they would not only observe how it changed them but how it changed their environment. Think of Kevin of the ISSC, for example.

For researchers working in the Gibsonian tradition, for example Nita, this is described as a specific, even tactile way of paying attention. In this sense, one educates one's attention by attuning it to the meaningful perceptual variables with the goal of reliably tracking what counts within the noise of perceptive feedback (Kimmel 2015: 62). Others conceive of this awareness of one's patterned technique as the kinesthetic sense. Josh Berson, for example, describes how tuning into his kinesthetic awareness helped him to understand himself better as a phenomenal and social being (Berson 1015: iix). Paying attention to his movement awareness revealed the patterning that shapes him as subject and his interactions with his environment. Spatz describes the same process as making contact with one's own habituated techniques, discovering "details or contours that could not have been predicted beforehand" (Spatz 2015: 147). For Spatz, this is what makes dance research practice a form of research in the first place. Whether one is a researcher of proteins, of particles or of body techniques—all researchers enjoy "establishing contact with something that has its own structure" (Spatz 2015: 147).

Observing can also mean to watch one's teacher and the movements they propose, although in my experience, this is rare in dance as movement research. Yet, if a teacher is observed, it is usually with respect to their kinetic and not with respect to their perceptual technique, which is difficult to show and see. Students begin by imitating what they observe, trying to follow their teacher's movements. Imitation is the first step in learning a new technique, it is one in which the learner is pre-occupied with following rather than with enacting. Rather than following verbal instruction, observation and following, the "reproduction of movement patterns" are the beginning but not the full realization of technique learning (Ingold 2010: 358). In this process, the learner is challenged by prior and deeply sedimented technique which only becomes apparent when challenged by a new technique (Downey 2010: 27). As soon as one has

the order of steps down which is, really, the only thing one can copy by looking at a teacher, the real training in bodymind technique begins. Training means integrating the learned schema into one's own body schema, exploring and testing which coordination of perception, muscle tension, proprioception and movement leads to the best results. It means getting the 'feel' of things for oneself, individually finetuning one's coordination in relation to one's environment (Ingold 2010: 353).[24]

Learning/Unlearning

I have mentioned that it can be difficult to unlearn a deeply sedimented bodymind technique. I, for example, really have trouble using my computer mouse consistently instead of the touchpad, which, over the years has led to a lot of tension in my right trapezius muscle, radiating into my arm and neck. The fascia in the area under tension has been sticking together, forming a little ball that I and others can feel. This touchpad technique is clearly bad for me, and I don't seem to be an expert of it at all (no control!). Truth to be told, I have not put it under the magnifying glass, I have not even attempted yet to consciously change it. Will I get rid of it?

Unlearning, viewed from the perspective of dance researchers is both a letting go of old technique and a replacing with new technique. Philosopher of dance Einav Katan call the letting go of an old technique an "unlearning of learning methods" (Katan 2016: 32). One doesn't need to let go of the technique but get rid of the way it was taught. Anthropologist of dance Lippit and Noland speak of "de-formance" practice to loosen the hold of conventional technique, such as

[24] In this respect, dance researchers may also be described as proficient in feeling when they leave trusted and established bodymind techniques. Thanks to William Mazzarella for pointing this out.

classical ballet training (Ness 2008: 276). From my observations in the dance research studio, deforming oneself isn't a one-step process.

Unlearning sedimented bodymind techniques can take weeks, months, or even years. It is relatively easy to get to the point of observing and singling out a technique, yet to stop doing it is another, new problem. From observing the dance researchers, it appears that a new technique is most easily adopted if it offers an upgrade to an old technique, consequently changing what one can do in the world or how one perceives the world.[25] For example, if rolling around one's axis can be achieved with less energy expenditure and faster with the new technique, it is likely that the technique will stick quicker than a version that requires a higher energy expenditure.

Thus, successful unlearning doesn't lead into a void where there is no technique, where there is a pause, disorientation even. It leads to the adoption of new techniques. And the more of an "upgrade" the new technique is, the easier it may be adopted. Upgrading in the sense of positively modifying bodymind technique means that the learner can achieve an old goal better or can even achieve new, maybe even prior unknown goals, thus enlarging the learner's capacity for varied action.

This widening of the space of possible actions can pertain to the dance space but can extend into one's life beyond the dance space as well. An upgraded perceptual technique of directing one's attention, for example, will not only alter one's focus in a dance studio but can change how one directs one's attention walking in the street, swimming in an ocean, or navigating a cocktail party. A functional upgrade is not only meant in the sense of the technique being more economical or efficient. Whether the technique is perceived as an upgrade depends on the phenomenal experience of the dance researcher adopting that specific technique and the

[25] I borrow the term upgrading from Yakhlef 2010: 417.

match of technique and environment. The learning of new technique, Abrahamson and Mechsner suggest, should be judged in terms of the subjective phenomenology of its functional utility (Chow et al, 2007, cited from Abrahamson/Mechsner 2022: 1835).

In my experience, it could also be the case that a new technique is not more functional but simply arouses a heightened or different kind of pleasure. The arousal of a positive feeling, maybe of a new lightness, might bring with it a feeling of ease in slowly learning and incorporating the new technique and thus might support the new technique taking hold. Remember how hard it was for me to pick up on the technique of perceiving suggested by Benoit Lachambre, yet once I got it, I thought my back was my front and I could move backwards with speed and confidence, feeling as if I move toward, not away from things. While I observed that bodymind technique is often upgraded with better functionality and efficiency in mind, this is related more to the theoretical presuppositions of dance researchers than with to what end bodymind technique can be upgraded. For now, I propose to call it a form of growth, with success being measured by the growing, developing learner.

Experiential Discovery

Mauss proposed that learning a new body technique is achieved through largely unconscious transmission of collective representations (Ingold 200, see Downey 2008: 10 for an argument against this claim). Although I believe Mauss tried to overcome the kind of representationalism of his time, like Bourdieu, Mauss still thought of techniques as thing-like; of a definitive technique as an object passed from body to body.

In contradistinction, following thinkers such as Dreyfus, Abrahamson and Ingold, I propose to think of learning technique as guided, experiential discovery. Learners experiment

with modulating a certain technique, paying attention to the bodymind effects of this specific modulation. Crucially, a new direction their technique can take has to be experienced as meaningful by themselves to sediment successfully into their bodyminds. This is achieved in individual ways, even for a technique that looks similar across a number of dancers once learned, e.g. a specific floor roll. A learner adjusts the proposed technique to her bodilymental capacities and preconfigurations and thus phenomenally discovers a new technique. The technique and the learner 'grow' together in mutual phenomenal development.

I propose to call this 'discovery,' rather than coping or adapting, because it is a thrilling, creative endeavor to experiment with one's bodymind in experience. It may happen to sustain a person as an organism and at the same time, it can be a joyful venture in growing and learning. Learning is experimental when learners, in this case dance researchers work on and push the boundaries of what is possible to experince and learn (Ahrens 2011: 57).

In other words, being in relation to one's environment in learning and growing is an inherently creative, agentive process through which new technique, new bodyminds and new environments emerge (Ingold 2010: 354). To presuppose a plan-making mind that controls the process, a cultural determinism or a biological determinism, in which a person as organism only adapts to survive, denies the inherent creativity so apparent in the dancer's practice. The stakes are high and low at the same time—it is just about forming yourself. The outcome, afforded by and negotiated with one's social and natural environment, is uncertain. It is a practice fueled by the social dynamics of collective imagination and play, taking individual paths in shared exploratory experiences.

The process of learning as altering and developing technique is furthermore situation specific. Learning a body technique is a coordination of conscious corporeal capacity, resources,

and tools at hand, and the socio-cultural, intercorporeal, and built/natural environments one is embedded in. One's observing, understanding, and altering of technique does not happen in a rationalist vacuum. On the contrary, it includes and responds to what a specific situation solicits. One central factor in the dance research space are other dancers and dance teachers such as Nita, Kira, and Antoine. Cognitive anthropologists Roy D'Andrade and Greg Downey suggests that learning is optimal if discovery is guided (D'Andrade 1981, Downey 2008). D'Andrade argues that even a "small amount of guidance can drastically affect the success and direction of the learning process" (D'Andrade 1981: 186).

In the case of learning technique in dance research, guidance is provided by attentive teachers, scores that limit and direct one's discovery, and the feedback and guidance individual dancers receive in group discussions after improvisational and exploratory scores. Teachers devise and adapt demonstrations on the spot, "in response to opportunities or errors that an instructor perceives while observing students" (Downey 2008: 206). Through the example of capoeira teaching, which can be compared to the learning of kinetic technique in dance research, Downey shows that what may look like mere imitation of a kinetic technique is a an intricate process, in which the teacher's assistance takes on the quality of scaffolding, providing tailored, practical assistance which allows "a learner to perform tasks that are initially beyond his or her ability alone" (Wood, cited from Downey 2008: 206). Such practical assistance can be the chunking of the full sequence of a technique, exaggerating or slowing down parts, isolating a tricky portion of a technique, or individually coaching a learner through what is a difficult step in the technique for them. As the learner becomes more competent, scaffolding can be incrementally withdrawn (Downey 2008: 206).

In ISSC research, a scaffolding technique is scores that delimit and direct movement and perception possibilities as well as direct individual feedback through verbal instruction or touch, guiding the learner's body. Also recall the stations set-up in the lab, designed to emulate and elicit specific sensations of touch. The teacher's expertise must reach beyond competence in the technique. In fact, teachers who provide scaffolding guidance must be able "to perceive the points at which a novice's skills are inadequate" (Downey 2008: 210).

While the above description of learning may appear particularly physical, education scientist Dor Abrahamson argues that dynamic bodily engagement is beneficial to learning of any kind (Abrahamson/Sánchez-García). Even more radically, he argues that all learning, including learning that we usually describe as exclusively cognitive is based on perceptual and kinetic technique (Abrahamson/Mechsner 2022: 1836). Abrahamson and Mechnser propose the human capacity to enact perceptually guided movement as an overarching psychological model of thinking, problem-solving, and learning (Abrahamson/Mechsner 2022: 1814). Thus, "to understand how people think, we need to understand how they move" (Abrahamson/Mechsner 2022: 1832). Mechsner, and Abrahamson specifically, in his work in the embodied education lab at UC Berkeley, propose to begin the teaching and learning of abstract concepts with physical movement tasks that instantiate—and thus seed—the concepts to be learned" (Abrahamson/Mechsner 2022: 1836). We can remember here, for example, how Kira taught the abstract principle of tensegrity with tooled movement exercises.

The fleshy stuff

Let's consider how learning bodymind techniques can involve forms of material change to the bodymind, an avenue in which training entails biological development and consequently

becomes corporeal condition (Downey 2008: 26). In fact, anthropologist Greg Downey suggests training and its potential for transformation as a central location to explore the "biocultural mangle of development"[26] (Downey 2008: 26). What is the material then? Both Downey and anthropologist Tim Ingold have studied the biological consequences of training, showing, in Downey's case, how Capoeira training "may demonstrably affect physiological change in the brain, nervous system, bones, joints, sensory organs, even endocrine and autonomic systems" (Downey 2010: 27) and, on Ingold's part, how the development of skills "entails specific modifications in neurology, musculature, and even in basic features of anatomy" (Ingold 2000: 375).

In the case of Ingold, there are female *Telefol* basket weavers, whose skills in weaving grow with their bodies (Ingold 2010: 360). Ingold proposes that skills don't only grow into our material configurations. They are, from the moment where we begin to learn, "fully part and parcel of the human organism, of its neurology, musculature, even anatomy and are as much biological as cultural" (Ingold 2010: 360). This would mean that the learning of bodymind technique changes not simply the organizational pattern of our matter, as Berson has proposed. It alters what Berson calls the substance, the very "organic architecture of the subject" (Downey 2010: 27) in a "lifelong process of ontogenetic development" (Ingold 2010: 360).[27] In the words

[26] I assume that Downey chose 'mangle' to reference Andrew Pickering's 'Mangle of Practice" (Pickering 1995). Pickering argues that "machines, instruments, facts, theories, conceptual and mathematical structures, disciplined practices, and human beings are in constantly shifting relationships with one another—"mangled" together in unforeseeable ways that are shaped by the contingencies of culture, time, and place." https://press.uchicago.edu/ucp/books/book/chicago/M/bo3642386.html (last accessed 04/20/2023)

[27] This argument, that learning of technique impinges on bodily matter, can be turned on its head as well. William James argued already at the end of the 19th century that the material of technique, "organic matter, especially nervous tissue, seems endowed with a very extraordinary degree of plasticity of this sort; so that we may without hesitation lay down [the principle] that the phenomena of habit in living beings are due to the plasticity of the organic materials of which their bodies are composed." (James, cited from Carlisle 2014: 21). In other words, the materiality we are made up of is so plastic, that our way of holding ourselves together and maneuvering through the world, inevitably needs to be similarly flexible as well.

of performance studies scholar Ben Spatz, the sedimentation of technique is not just a learned pattern but bodymind technique may transform the material structure and physiology of the body (Spatz 2015: 56).

An obvious example for the alteration of bones, muscles, fascial, and nerve tissues is the anatomy of the feet of a ballerina after years of pointe dancing or the measurable elongation of a spine before and after a Pilates class. Yet above the feet, the learning of technique alters the matter of mind as well. Cognitive psychologist Margaret Wilson explains how human cognitive systems are changed after a new meditation technique is mastered (Wilson 2010: 182). Research on the effect of meditation on attention shows not only that there are changes in the activations of brain areas during or just after performing meditation, but that there are lasting behavioral and brain-imaging differences on attention tasks in long-term practitioners, even when not meditating (Wilson 2010: 183). Cognitive make-up changes not only between more and less trained meditators but between cultures as well, no blueprint has been identified so far (Wilson 2010:180).

Wilson speaks of the kind of technique necessary to change one's cognitive architecture as a process of cognitive retooling, sometimes with the help of cognitive technologies. These technologies aid in accomplishing tasks and can change how we think yet are not part of our innate cognitive architecture, for example, the number system (Wilson 2010: 181). Without going deeper into the details of cognitive retooling, the take-away for this argument is that humans have an "extraordinary degree of voluntary control over their bodies, both in terms of the types of actions and behaviors that can be invented, and in terms of the choice of when to deploy them" (Wilson 2010: 185). In intentionally altering existing and learning new perceptual and

kinetic techniques, such as meditation, we have the "ability to re-engineer [our] existing cognitive [and physiological] resources in a flexible fashion" (Wilson 2010: 185).

Of course, there are limits to the bodymind's plasticity, in organic predisposition, variation in human physiology, variation in social and ecological environments (remember the inequality bodies), prior training and ability to adapt, that both Spatz and Wilson point out (Spatz 2015: 32 and 56, Wilson 2010: 184).

Self-Formation

What kind of definition of selfhood emerges from this talk of bodymind technique, of extending one's capacity to act by adapting old and learning new bodymind techniques? Education researcher Söhnke Ahrens suggests, referencing Jenny Lüders, that one cannot observe one's own capacities and self in their totality (Ahrens 2011: 58). The way to understand, in this case, the patterning of one's bodymind techniques, is to experimentally test them, to play and improvise with them, and to do them otherwise. In this experiment, limits of what is possible bodymind technique, and what is a possible boundary of self, can be understood and can be shifted.

In this regard, historian and anthropologist of science Josh Berson has proposed an understanding of bodies as configurational phenomena (and I think he may mean minds or something like bodyminds as well, as he is no dualist) that appears in line with the account of technique I have advanced above. In his words, bodies are "specifically configured materials—that can be reconfigured elsewise [and that are] constituted not simply by the material substances found in them but by the principle of configuration by which those substances are organized and continuously replaced" (Berson 2016: 4). An ensemble of bodymind techniques builds and

adapts as we grow, learn, and experimentally reconfigure, enmeshed in, enabled, and constrained by our social and ecological environments. This configuration of techniques assembles us into people and allows us to move and act.

And, if we suppose that these techniques take precedent over or at the very least complement materiality or spirituality in characterizing self-formation, a dynamic idea of what a person is emerges. Of people as less made up of tough bones and definite character. A dynamic, conceptual outlook would get us to reconsider the material and traits-based stability of human bodyminds as conditional for selfhood and would allow us to see learning of technique as biosocial, effecting socio-cultural and biological changes of peoples' bodyminds.

Conclusion

I opened this dissertation with the words of Deborah Hay, who declared that the time is ripe to understand dance anew, to understand dance as something else than art or performance. Answering Hay's call, analyzing, and interpreting what I observed in the contemporary dance community for the past years, I thus developed a framework of dance as research practice throughout this dissertation. I showed how research on and in movement began in collaborations of dancers, physiologists, and psychologists in the late 19th century and how dancers and cognitive scientists still overlap in topics and collaborate on research today. In studying the ISSC and the Axis Syllabus Berlin, I provided a glimpse into the everyday of professional dance research practice: the spaces, tools, people, language, topics, and methods around which dance research revolves. I analyzed what differentiates dance research from natural scientific research and have delineated and affirmed dance as a genuine research practice.

For me, personally, the part that is most exciting is to discover a new research practice and to find out how it works. And then to see whether and how the dance researcher's findings complement and challenge what we know about attention and anatomy already, based on prior natural and social scientific research. What I have proposed, in this regard, is that dance researchers not only enrich our conceptual knowledge about attention and anatomy, like conventional scientists and scholars do, but propose perceptual and kinetic techniques, that change how we practice attention and anatomy. These bodymind techniques are continually evolving and adapting, shaping, and simultaneously reflecting the challenges, norms, and values of their respective natural and socio-cultural environments.

For me, all of this would be more than enough. Yet, the dancers want more. They want their practice to be politically efficacious. In this final chapter, I will thus hold them up to the job they have set for themselves and ask: How is dance research an ethico-political practice?

Angela Schubot, who led the workshop on feeling into a foreign heart, with which I opened the introduction, writes in her mission statement:

> We can develop other bodies that make a completely different economy of being together possible. And I am asking the system question. But from within. And from a reciprocity with what is non-human. In us and around us. I'm looking for a real alternative that doesn't have to be dystopia. Beyond spiritual exaltation and ecological exploitation; a dissolution of the ego to the world; a posthuman act of equality of all life.1

Angela, the ISSC, the Axis Syllabus Berlin, and many more dance researchers I encountered throughout my field research, have ethical and political goals that they aim for through their research practice. They want to change the ways in which we are patterned and organized as humans, as communities and as societies. Yet they don't want to do so by setting normative imperatives, by developing and institutionalizing political programs or new laws, or by protesting existing ones in conventional formats like demonstrations, strikes or online activism. Reminiscent of John Dewey's understanding of experimentation, which he defined as "the emancipation from the hegemony of habitual procedures" (Dewey, quoted from Ahrens 2011: 59), they are proposing to change humans socially and biologically, starting by observing habitual bodymind techniques to consequently experiment and alter them. By altering techniques of bodymind, so the dance researchers, we enact different people and consequently, different cultures of being together, of forging relations as a society or community of humans and non-humans. This is a putting into practice of the anthropological embodiment hypothesis, raised by Michael Jackson and Thomas Csordas in the 1990s: Culture and sociality are enacted through

1 http://www.angelaschubot.com/biography.html (last accessed 03/27/23).

bodilymental techniques and thus, can be changed here as well (Jackson 1989, Csordas 1990, 1993).

Yet, the dance research community is quite esoteric, its reach is limited compared to political mobilization for general strikes by large unions or Twitter activists with several million followers. We have also seen that there are differences in how the dance researchers imagine the more just, more ethical future that is to arise out of their practice. Furthermore, while often positioned in opposition to institutionalized politics, the dance researcher's political ideas are products of their own cultural environments, e.g., reflecting political debates around mandatory Covid 19 vaccination. Finally, the dance researcher's normative commitments can remain implicit, merely indicated as if it was clear that they were commonly shared.

Can acts of skillful exploration and self-cultivation serve as the basis for enacting political change? Is social change a personal project that begins in awakening the soma, as Nita claims (Little 2014: 21)? Isn't it too private to ask people to move differently to change the system? It is much harder than an online petition or a donation, that is for sure.

Finally, there is the violent history of nationalist movements that employed bodily reform practices. If people need to change physically and mentally to be part of an aspirational political community, it means there may be, eventually, standards for what constitutes successful change or belonging, as evidenced, for example, by the pseudo-scientific theories of racial superiority of the German national socialists. In the following pages, I'd thus like to address some of the advantages and difficulties of a political praxis of social change that begins in individual bodilymental reform.

First, what differentiates the political activism of dance researchers from professional politicians, campaigners or political activists is that not all dance researchers practice with the

goal to change society. Many simply enjoy dancing and researching movement collectively, even think of the dance research space as a time-out from everyday neoliberal politics in which their existence as professional artists is constantly under threat. It is rather the leaders and inventors, such as Frey or Nita, or advanced practitioners and teachers such as Kira, Antoine, Diana, or Angela that think of their practice as inherently political. If students adopt this position as well, they usually come to think of their practice as a form of political activism after a gradual transition. In this respect, we can describe dance research as not exclusively or primary political. Rather, it's a dance and research practice whose ethico-political goals are secondary. While political goals, e.g., the mental health of children, are often a criterium to secure funding for academic research projects, that's not really the case in dance research. Since the practice is not recognized as a political *or* as a research practice by most institutions and funding bodies of the arts, politics, and sciences, it usually does not receive funding from institutions that would fund such research.

Second, the dance researchers I have observed, except for Frey Faust, do not behave like preachers or politicians. They do not enforce their political programs top-down and they do not lobby people to subscribe to their political agenda. Again, I think this has to do with the fact that the normative goal of dance research is, for many practitioners, only a secondary goal. Rather, dance researchers aim to create spaces in which students can make the experience that their agency emerges out of trained bodymind technique. That one can perceive and thus experience the world anew if one schools their perception and motion. That one can envision, based on this, desired worlds to experience. In that sense, the offer is educational rather than ascriptive, although it is certainly marked by the normative commitments of its teachers. It is more akin to a

grassroots kind of political organizing, of forming communities of movers in which alternate modes of being and moving can be explored.

Third, political efficacy, in our times, is often measured by its reach through various media formats. The social change effected by dance researchers, qua its nature of changing bodymind technique, however, is not consumed through visual representations. According to Spatz, who critiques scholars of theater and performance that privilege phenomena of (public) spectatorship as sites for social intervention, transformation must not be confirmed by spectatorship; seeing something is not the only way to be transformed (Spatz 2015: 7).

On the contrary, in learning new techniques for perception and motion, change may be invisible in the act, especially to untrained observers. As a practice of transformation, dance research is not built for public representation. Its effects can and have been visualized. Yet, within dance research, the efficacy of the practice is measured through first-person experience of oneself learning and changing and not through the visual representation of such change. It's a felt rather than consumed transformation if you will.

In playing up bodymind techniques as constitutive of socio-cultural orders and configurations, critics have voiced that structural constraints to this productive role of bodymind technique remain underestimated or even neglected. Furthermore, the enabling features of constraint are overlooked. Do the dance researchers overestimate themselves as to how much agency they have in changing the social and political status quo? What about the fact that working conditions in capitalist societies force most people into routines that are unhealthy for mind and body and leave little room for experimentation which one's desired states of body and mind?

The dance researchers don't neglect that there are structural constraints to what a bodymind can do. In fact, they want to make these constraints explicit to critique them. How is it that capitalism, the patriarchy, ableism, ageism, classism, or racism shape our bodymind techniques? What patterns are inscribed into our perception and motion? That's what dance researchers are interested in. How can we resist or even reverse this shaping? Yet for the dancers, who know what they can effect on and in individual bodyminds, being shaped and shaping oneself are not mutually exclusive.

In the 1980s, anthropologist Sherry Ortner described the practice turn as fruitful because from the perspective of practice theory, one can understand that "[society as a] system that is powerfully constraining, and yet that system can be made and unmade through human action and interaction" (Ortner 1984: 159). In parallel, the dance researchers acknowledge and aim to bring current constraints under conscious observation to change the existing social order.

Cultural studies scholar and historian Karin Harasser has pointed out the problem of a biopolitical perspective that aspires to explain social organization in a determinate manner top-down.[2] It's a bird's eye view, the god trick, where seemingly everything is explainable, alluding to dispositifs that maintain the exercise and organization of power within a social body. Yet in choosing this route of explanation, did we really need to go out and observe what people do? Have we described anything, or have we interpreted from comfortable distance? The dancers are empiricists. From what I glean, they'd rather observe diligently, look for and then use some wiggle room, than proclaim that they are governed by a dispositif of power, in which there is no room to wiggle. In studying their processes of self-formation, we shift the focus away from

[2] Karin Harasser in conversation wir Chris Salter at Werkleitz Festival. A recording of the conversation can be found here: https://vimeo.com/570689968 (last accessed 03/29/2023).

processes of structural and discursive subject formation toward empirically observable practices of concrete self-formation, which have been undertheorized (Alkemeyer et al. 2013: 14).

We can, however, understand agentive self-observation and self-formation as a modern dispositif of power in itself (Segel 1988, Schwart 1992). Historian Maren Möhring, for example, describes the shift from disciplinary power as enforced top-down toward disciplinary power as extra-institutional and individualized at the turn of the 20th century (Möhring 2004). At that time, the time of the beginning of dance research, a new understanding of human physiology arises in which the body is directed from the inside and physical training is a self-induced and self-regulated practice that cultivates individual personality and agency (Möhring, 2004: 77-87). Josh Berson makes a similar argument when he writes that self-formation has a history and is a modern phenomenon (see as well Reckwitz 2020 for a history and theory of self-modelling and subjectivity). Following Ian Hacking, Berson proposes that it is precisely because we have come to understand our bodies as enmeshed in dispositifs of power that we are aware of them more than ever before (Berson 2015: 62):

> [A]s individuals and collectives we devote considerable energy to the management of bodily substance and bodily presence. This is not new, but it is newly widespread. Physical culture — by which I mean things like exercise, the regimentation of diet, and the adoption of technical practices of movement, breathing, and hygiene — is a distinctly modern phenomenon, born of distinctly modern anxieties about race, climate, and bodily economy. These anxieties grew out of the entwined histories of physiological instrumentation [...] and (mainly European) colonial expansion.

As Berson crucially points out in the same vein, that does not mean that we inhabit our senses more deeply (Berson 2015: 62). Rather, we increasingly trust technologies, "sensing machines", to sense for us better than we could (Salter 2022). Yet it is precisely in perception and movement that we can register changes in quality and patterning of the very same. And thus, it is conscious perception and movement which the dancers use as their location of analysis and

intervention. For Berson, the ability to intentionally change techniques of perception and motion is urgent in face of a world that is changing more quickly than ever. He believes that "habits of holding and moving the body learned early in life may not even support successful coping over the course of life, because the environment changes so quickly that it is no longer matched to habits learned early on" (Berson 2015: xiii). For feminist theorist Rosi Braidotti, who reminds us, with Foucault, that power is a multilayered concept, which covers both negative or confining methods (potestas) as well as empowering or affirmative technologies (potentia), bodies (and I'd say minds as wel) can be both: disposable commodities to be vampirised and decisive agents for political and ethical transformation (Braidotti 2007). According to Braidotti, how to tell the difference between the two is the task of cultural and political theory and practice.

Following Ben Spatz, I propose that whether a movement practice is oppressive or liberating depends upon the specific relationship between a practitioner and an epistemic field, which we can observe and analyze (Spatz 2015: 53). For example, specialized training can be enforced coercively, while "the everyday practice of what is traditional or conventional may be full of empowerment and agency" (Spatz 2015: 53). In making this argument, Spatz builds on McKenzie's critique of Victor Turner's work on liminality and theater. Turner argued that performance genres such as theater, music, dance, and games induce a state of liminality and are "characterized by freedom from the constraints of social structure, opening up creative possibilities" (Besnier and Brownell 2012: 452). In that sense, while we are kinetically, perceptually, (discursively and affectively) conditioned by our social environments, we can not only actively resist conditioning (Noland 2008: 176) but we can seek out environments that appear less heavily constrained than others, allowing us to take a more agentive lead in changing and inventing bodymind technique.

McKenzie and Spatz argue nevertheless that performance is not necessarily transgressive with respect to social norms. And historian of dance Stangers proposes that these less constrained environments in Euro-American modern dance that have historically been declared as utopian have more than once masked simultaneous dispossession (Stanger 2021: 4). On the other hand, the assumption that "traditional, everyday practices are necessarily enacted under conditions of non-agency" has been critiqued by Saba Mahmood in her work on the religious practices of women in the Muslim piety movement in Egypt (Mahmood 2011, Spatz 2015: 53).

With Ortner, I settle on the possibility of simultaneity. That dancers can use their bodyminds as *leibliche* research instruments and conceive of themselves as able to observe and change themselves in practices of self-formation is a historical phenomenon. As such, it is a dispositif of power, organizing agency in a specific, modern manner. At the same time, because individual humans are taken seriously as agentic, and adaptive, dance researchers can challenge or unmake social norms and values of their time by changing the patterning of their bodymind techniques. Observing how they do so will teach us how the dispositif we proclaim is enacted, often with difficulty, hiccups, resistance, and exceptions. In practice, a specific schema of organizing power and the subjects that enact this schema are constituted simultaneously. The sports sociologist Thomas Alkemeyer has called this phenomenon a choreography of the social (Alkemeyer 2010). And with this dissertation, my aim has been primarily to show the dance researcher's share in these coevally structural and individual processes of self-formation.

The radical potential of the dance researcher's political ambition does not lie in the reach of their politics or in the clarity of their message. It lies in their effort to render bodymind techniques visible as a plane for ethico-political intervention.

Decisions about physicalmental entrainment, for example the patterning of our attention, or the ways and hours we walk and sit, are made daily. Yet, they are often not decided by us because many of us choose to believe that techniques are unconscious and thus impossible to alter. We form ourselves by behaving, dressing and moving in certain ways yet seldom reflect on these processes as we don't have the analytical frame to understand them as accessible (this frame can be provided for us and sold to us by others, e.g. stylists, speech trainers etc.). Not thinking about whether you'd like to sit in a chair for 10 hours a day is an intentional choice.

Meanwhile, companies such as Meta train our attention to meet their annual revenue goals or fascist parties open sports clubs to attract bored youth. Companies and organizations often decidedly obscure how they intervene into their user's techniques of perception and motion. We are called upon to change physically and mentally daily, by advertising images of ideal type bodies, by available clothing sizes, by attitudes and perceptions that we are prompted to perform at work. As we are asked to change physically and mentally, many feel they continuously fail because the norms laid out for perception and motion are narrow and reflect traditional standards, e.g. patriarchal norms of physical comportment.

What dance researchers show is that an individual or a community can have a say in organizing the patterning of one's bodymind. Dance research is unique in that it is a practice in which techniques of perception and motion are marked rather than obscured. We learn techniques of perception and motion all the time, for example, when we use programs such as Instagram and TikTok, yet these moments of learning often go unmarked. As Spatz writes, aptly (Spatz 2015: 105):

> Children train in physical practices of stillness and sitting, but these are not considered part of the content of lessons. In PE, on the other hand, embodied technique is the explicit content. But does physical education live up to its name by providing a substantive education in physical culture?

The dancers hold unique skills in teaching body literacy and in pushing discourse around self-formation and self-cultivation beyond current frames of beauty ideals in health, fitness and wellness culture. In modern societies, active self-formation is expected, desired, and sometimes dreaded as it involves the effortful shaping and training of one's body according to primarily aesthetic standards (Alkemeyer et al 2013: 13). To what end a body must be shaped is established in the media and the public, dominated by marketing and advertising of products that promise the kind of aesthetically desirable body that's currently trending.

Dance researchers are not interested in forming bodies according to visible, aesthetic standards. They don't care about shaping toned bodies, strengthening specific muscle groups, selling energy shakes and Pilates programs. Their goal is not forming better looking bodies but training functional and innovative ways of perception and motion. Furthermore, they are interested in experimenting with perception and movement in creative, playful ways, enlarging the realm of what we can imagine as possible. They are interested in pushing the training of perception and action beyond what is known and thus beyond what is experienced. How would we encounter each other in the street if we changed our styles of walking toward the swinging step that Kira taught in Vienna? If our professional as much as our cultural identities are to a large extent constituted by training in techniques of bodymind (Spatz 2015: 172), the dance researchers have the tools to help us to understand how we have been entrained so far and how we can change according to our needs and desires.

Another criticism that has been leveled against the idea to begin political change in physicalmental training is the idea that physical culture can seduce people mindlessly into unethical political projects. From various perspectives, bodily practices have been criticized as mindless, easy to be exploited toward the end of questionable political goals. We are familiar

with the stereotypes of naïve ballerinas and dumb weightlifters. The underlying idea on the level of the individual being: if one is interested in investing much time into their physical education, there is no more time left for intellectual education. In the popular image, physical training seems to even contradict cognitive learning although psycho-motor learning research suggests otherwise. And the ensuing assumption is that if the mind is left unchecked or not involved, physicality can easily be instrumentalized. Marching into war, so historian William McNeill, became possible thanks to close-order military drills. Bonded through rhythmically moving together, an army becomes more efficient (McNeill 1995: 5).[3]

There is an anxiety prevalent, in scholastic culture and I think specifically in Germany after the Holocaust that if rational minds don't lead the way, if mind is not prioritized over body, disaster will ensue. In other words, bodily practice is particularly prone to be captured by ideology. The mindless-ness of bodily practice is either feared or ridiculed, downplayed as bereft of meaning or merely aesthetic. There is, what Berson calls a delamination of excessive body from rational mind (Berson 2015). Theoretically, this split of mind and body, where the mind takes the lead in making rational decisions is becoming less tenable with emerging research on 4E cognition and the distribution of neuronal activity and circuitry throughout the entire body, e.g., in the human gut system.

Historically, however, this worry is more than valid and has been illustrated, foremost, in the context of understanding German national socialism and the naturalization of pseudo-scientific theories of race in which healthy, strong, male, and white bodies reign morally supreme. If we look at social and institutional ties in early 20th century dance research and

[3] McNeill traces the efficacy of rhythmic movement much further back into social ritual and religious contexts. Yet, he shows how it was separated out from these contexts and employed globally in nationalist movements of the nineteenth and twentieth centuries (McNeill 1995: 5)

physical culture, as we briefly did in chapter two, it is obvious that fascist ideology easily took root in and was championed by dance researchers in utopian communities, and that body movement practices were employed for political recruiting and inculcation.[4]

Yet, what gives the impression that physical practices lend themselves better to political instrumentalization than other practices? As we see around the turn of the 20th century, dance research emerged in the context of utopian reform communities and garden cities, which strove to create egalitarian working and living conditions for factory workers fleeing the overcrowded metropoles. Many central figures of the dance research community emigrated at the onset of national socialism, appalled, or directly threatened by Nazi politics. That we believe that dance or other physical practices might be more easily coopted toward political ends than other practices, is the case because we, ourselves, still implicitly adhere to the old Cartesian paradigm that bodily practice is mindless.

Disregarding, downplaying or being afraid of social change effected through bodilymental practice comes from a place where one believes that a conscious mind, detached from its unconscious body, can detect, and stop bodilymental inculcation. But do minds really stop bodies? Cognitive science research tells us just the opposite.

Dance research is neither inherently political left or right, oppressive or liberatory, fascist or socialist but can function differently depending on the context in which it is practiced. In this sense, the very scientism, holism and organicism that influenced social reform efforts of scientists and social reformers and made dancers into researchers in the early 20th century also opened the door for a wide acceptance of the pseudo-scientific theories of national socialism. As

[4] For a detailed historical analysis of the politics of early 20th century experimental and modern dance, see Ana Isabel Keilson's 2017 dissertation *Making Dance Modern: Knowledge, Politics, and German Modern Dance, 1890-1927.*

Braidotti suggests, it depends on scholars to critically examine the political normativity of a movement practice, to judge whether a certain dance research project or other form of bodilymental training is confining or empowering. Historian McNeill underlines the point that the normativity of movement practice is context dependent when he writes (McNeill 1995: 155):

> Whatever happens, our capacity for muscular bonding will not disappear. If wisely aroused, it could help to create and sustain new sorts of communities that might turn out to be thoroughly compatible with the global economic exchanges upon which we have come to depend. Dance groups, choral societies, athletic associations, and the like do not need to be harnessed to rival nationalisms or other confrontational identities. The shared euphoria aroused by keeping together in time is intrinsically diffuse, without definite external object or significance. Ideas and words can therefore turn the warm sentiments of group solidarity it arouses in many different directions. Hitler's brutal, suicidal path is not the only way to go, nor does the enormous variety of existing religious groups exhaust possible meanings assignable to this human capability. Benign, human, and secular ideals can also be nourished by muscular bonding within human groups, large and small.

A problem with this may be, in contradistinction to other political practices, that dance researchers seldom verbalize nor circulate their political program in the form of visual representations. To those who conceptualize politics as based on ideas and words, meaning needs to be added to movement for movement to make sense. Dance research effects a different political change than a dance performance piece that actively problematizes colonial violence and ensuing trauma verbally and visually. Dance research does not mean or say something, its change ensues in the form of altered bodyminds, which, in turn, effect a reconfiguration of their social environments. It is not easy, in that sense, to "read" the political agenda of dance research, similarly as it is not always easy to "read" the political agenda of neurobiological research, with the difference that the latter wouldn't explicitly claim to be a political practice.

That bodymind technique does not actively verbalize its normativity, does not mean that it is devoid of it. It is not the case that we have value-neutral bodilymental practices or bodymind

techniques that can then be filled with a chosen political program or ideology. Rather, our techniques of bodymind, the ways we move, see, grasp, touch, listen, crawl are always already imbued with and simultaneously enacting our normative environments. Take the way that many of us shape their bodies through strategic weightlifting, a result of fitness culture, specific trends in body image, excessive marketing, and price dumping for gym memberships. A certain bodymind technique enacts a certain norm. Moreover, a technique always presupposes a specific configuration of material reality to function (Spatz 2015: 66). However, these assumptions have the function to support the working of technique rather than to make a propositional declaration about the materiality of reality (Spatz 2015: 66).

What the dance researchers offer us is to understand that norms are written into our bodymind techniques, and that we have a choice in what kind of norms we'd like to learn and enact. Although it's a lot of work, one can indeed acquire the embodied technique of a social class, gender, or religion that is different from the one into which one was born (Spatz 2015: 54). To enact a technique that supersedes hegemonic techniques, e.g., a technique that challenges a heteronormatively gendered gait, is an epistemic accomplishment in that it enlarges the range of social and cultural norms available to perform.

What are the value presuppositions of dance researchers on the level of propositional declarations? When I directly probe the dance researchers as to the kind of political or social change they want to effect, their responses vary in nuance but are all part of a seemingly homogenous conceptual program: toward a more sensible society, for more embodied intelligence, toward body literacy, for better forms of human and non-human communication that involve somatic attunement and awareness, for a pain-free and optimal use of one's bodymind, for forging respectful relations, for being together, bodily. However, answers always remain

rather vague. Interviewees excuse themselves for not being clear enough on the matter and do not feel informed enough about political theories or the histories of the ideas they find appealing. Even for themselves, the dance researcher's political agenda is often not spelled out in concepts and words, at least not systematically. The underlying normative assumption is, however, for many dance researchers I talked to, that as more people become aware of the possibility to consciously observe, alter, and innovate bodymind technique, the more aware the person and hence the better society will be, for example more empathetic. Yet we have seen, as in the case of Frey Faust, that libertarian politics and Anti-Vaxxer positions that easily glide from naturopathy into conspiracy theory, can be woven into the political agenda of dance research. In the same breath, however, we have seen the AS community's detection and resistance to Faust's increasingly radical propaganda that has felt as an instrumentalization of the AS for many AS dancers. Which gets us back to the point that context matters and that it depends on a critical analysis as to what presuppositions undergird specific instances of dance research.

It is in recognizing techniques of body and mind as enacting what we call culture or sociality that we can simultaneously recognize them as critical vehicles for political action—in the form of intentional self-formation and community change. Bodymind techniques contribute in practically and normatively constituting and questioning social and cultural orders and the time is ripe to pay attention empirically to how different groups of practitioners enact, train, and innovate such techniques in their everyday and professional practices.

References

Abernethy, Bruce. 1996. "Training the Visual-Perceptual Skills of Athletes: Insights from the Study of Motor Expertise." *The American Journal of Sports Medicine* 24 (6_suppl): S89–92. https://doi.org/10.1177/036354659602406S24.

Abernethy, Bruce, Jonathan P. Maxwell, Richard S. W. Masters, John van der Kamp, and Robin C. Jackson. 2007. "Attentional Processes in Skill Learning and Expert Performance." In *Handbook of Sport Psychology, 3rd Ed*, 245–63. Hoboken, NJ, US: John Wiley & Sons, Inc.

Abraham, Anke. 2016.
"Künstlerisches Forschen in Wissenschaft Und Bildung. Zur Anerkennung Und Nutzung Leiblich-Sinnlicher Erkenntnispotenziale." In
Tanzpraxis in Der Forschung – Tanz Als Forschungspraxis. Choreographie, Improvisation, Exploration., edited by Susanne Quinten and Stephanie Schroedter, 19–36. Jahrbuch TanzForschung 2016. Bielefeld: Transcript.

Abrahamson, Dor, and Franz Mechsner. 2022. "Toward Synergizing Educational Research and Movement Sciences: A Dialogue on Learning as Developing Perception for Action." *Educational Psychology Review* 34 (3): 1813–42. https://doi.org/10.1007/s10648-022-09668-3.

Abrahamson, Dor, and Raúl Sánchez-García. 2016. "Learning Is Moving in New Ways: The Ecological Dynamics of Mathematics Education." *Journal of the Learning Sciences* 25 (2): 203–39. https://doi.org/10.1080/10508406.2016.1143370.

Adshead-Lansdale, Janet. 1999. *Dancing Texts: Intertextuality in Interpretation*. London: Dance Books.

———. 2001. "Tanzforschung." In *Tanz*, edited by Sibylle Dahms, Claudia Jeschke, and Monika Woitas, 28–36. MGG Prisma. Kassel : Stuttgart: Bärenreiter ; Metzler.

Ahmed, Sara. 2006. *Queer Phenomenology: Orientations, Objects, Others*. Durham: Duke University Press.

Ahrens, Sönke. 2010. *Experiment Und Exploration: Bildung Als Experimentelle Form Der Welterschließung*. transcript Verlag. https://doi.org/10.1515/transcript.9783839416549.

Alexander, Zeynep Çelik. 2017. *Kinaesthetic Knowing: Aesthetics, Epistemology, Modern Design*. Chicago ; London: The University of Chicago Press.

Alkemeyer, Thomas, ed. 2009. *Ordnung in Bewegung: Choreographien Des Sozialen: Körper in Sport, Tanz, Arbeit Und Bildung*. 1. Aufl. Materialitäten, Bd. 10. Bielefeld: Transcript.

———, ed. 2013. *Selbst-Bildungen: Soziale Und Kulturelle Praktiken Der Subjektivierung*. Priktiken Der Subjektivierung, Band 1. Bielefeld: Transcript.

Alkemeyer, Thomas, Kristina Brümmer, Rea Kodalle, and Thomas Pille, eds. 2009. *Ordnung in Bewegung, Choreographien des Sozialen: Körper in Sport, Tanz, Arbeit und Bildung*. Materialitäten, Band 10. Bielefeld: Trancript.

Alter, Joseph S. 1992. *The Wrestler's Body: Identity and Ideology in North India*.

Asad, Talal. 1993. *Genealogies of Religion*. https://doi.org/10.1353/book.16014.

Assis, Paulo de, and Lucia D'Errico, eds. 2019. *Artistic Research: Charting a Field in Expansion*. Artistic Research. Lanham: Rowman & Littlefield International.

Auerbach, Erich. 2013. *Mimesis: The Representation of Reality in Western Literature*. Translated by Willard R. Trask. 1st Princeton Classics ed., 50th anniversary ed. Princeton Classics. Princeton ; Oxford: Princeton University Press.

Bateson, Gregory. 1944. "Form and Function of the Dance in Bali." In *The Function of Dance in Human Society*, edited by Franziska Boas, 46–52. New York: Boas School.

———. 2000. *Steps to an Ecology of Mind*. University of Chicago Press ed. Chicago: University of Chicago Press.

Bateson, Gregory, and Margaret Mead. 1942. *Balinese Character. A Photographic Analysis.* Edited by Wilbur G. Valentine. Special Publications of the New York Academy of Sciences. Vol. II. New York: The New York Academy of Sciences.

Bernacer, Javier, and Jose Ignacio Murillo. 2014. "The Aristotelian Conception of Habit and Its Contribution to Human Neuroscience." *Frontiers in Human Neuroscience* 8 (November). https://doi.org/10.3389/fnhum.2014.00883.

Berson, Josh. 2015. *Computable Bodies: Instrumented Life and the Human Somatic Niche*. Bloomsbury Advances in Semiotics. London ; New York: Bloomsbury Academic, an imprint of Bloomsbury Publishing Plc.

Besnier, Niko, and Susan Brownell. 2012. "Sport, Modernity, and the Body." *Annual Review of Anthropology* 41: 443–59.

Birdwhistell, Ray L. 1970. *Kinesics and Context: Essays on Body Motion Communication*. University of Pennsylvania Publications in Conduct and Communication. Philadelphia: University of Pennsylvania Press.

Blackman, Lisa. 2008. *The Body: The Key Concepts*. English ed. The Key Concepts, 1747-6550. Oxford ; New York: Berg.

Boas, Franz, and Franziska Boas. 1944. “Dance and Music in the Life of the Northwest Coast Indians of North America.” In *The Function of Dance in Human Society.* New York.

Bourdieu, Pierre, and Pierre Bourdieu. 2010. *Outline of a Theory of Practice*. Nachdr. Cambridge Studies in Social and Cultural Anthropology 16. Cambridge: Cambridge Univ. Press.

Bourdieu, Pierre, and Randal Johnson. 1993. *The Field of Cultural Production: Essays on Art and Literature*. New York: Columbia University Press.

Braidotti, Rosi. 2007. “Feminist Epistemology after Postmodernism: Critiquing Science, Technology and Globalisation.” *Interdisciplinary Science Reviews* 32 (1): 65–74. https://doi.org/10.1179/030801807X183623.

Brandstetter, Gabriele. 1995. *Tanz-Lektüren: Körperbilder Und Raumfiguren Der Avantgarde*. Origausg. ZeitSchriften Fischer. Frankfurt am Main: Fischer Taschenbuch Verlag.

Burnett, D. Graham, ed. 2022. *Twelve Theses on Attention*. Princeton: Princeton University Press.

Burnett, D. Graham, Catherine L. Hansen, Justin E. H. Smith, and ESTAR(SER), eds. 2021. *In Search of the Third Bird: Exemplary Essays from the Proceedings of ESTAR(SER), 2001-2021*. London: Strange Attractor Press.

Burtt, Edwin A. 1954. *The Metaphysical Foundations of Modern Science*. Mineola, N.Y: Dover Publications.

Butler, Judith. 1990. *Gender Trouble: Feminism and the Subversion of Identity*. Routledge Classics. New York: Routledge.

———. 1999. “Foucault and the Paradox of Bodily Inscriptions.” In *The Body: Classic and Contemporary Readings*, edited by Donn Welton, 307–13. Blackwell Readings in Continental Philosophy. Malden, Mass: Blackwell.

Butterworth, Jo, and Liesbeth Wildschut, eds. 2017. *Contemporary Choreography: A Critical Reader*. Second edition. Milton Park, Abingdon, Oxon ; New York, NY: Routledge.

Carlisle, Clare. 2014. *On Habit*. Thinking in Action. New York: Routledge.

Casey, Edward. 1998a. “The Ghost of Embodiment: Is the Body a Natural or a Cultural Entity.” In *Body and Flesh*, edited by Donn Welton. Blackwell.

———. 1998b. “The Ghost of Embodiment: On Bodily Habitudes and Schemata.” In *Body and Flesh: A Philosophical Reader*, edited by Donn Welton. Blackwell.

Chang, Hasok. 2004. *Inventing Temperature: Measurement and Scientific Progress*. Oxford Studies in the Philosophy of Science. New York: Oxford University Press. https://doi.org/10.1093/0195171276.001.0001.

Citton, Yves. 2017. *The Ecology of Attention*. English edition. Cambridge, UK: Polity.

Coninx, Sabrina, and Peter Stilwell. 2021. "Pain and the Field of Affordances: An Enactive Approach to Acute and Chronic Pain." *Synthese* 199 (3–4): 7835–63. https://doi.org/10.1007/s11229-021-03142-3.

Cook, Joanna. 2018. "Paying Attention to Attention by Joanna Cook « Anthropology of This Century." 2018. http://aotcpress.com/articles/paying-attention-attention/.

Corwin, Anna I., and Cordelia Erickson-Davis. 2020. "Experiencing Presence: An Interactive Model of Perception." *HAU: Journal of Ethnographic Theory* 10 (1): 166–82. https://doi.org/10.1086/708542.

Cotter, Lucy, ed. 2019. *Reclaiming Artistic Research*. Berlin: Hatje Cantz Verlag.

Crary, Jonathan. 2001. *Suspensions of Perception: Attention, Spectacle, and Modern Culture*. 1. MIT Press paperback edition. October Books. Cambridge, Massachusetts London: The MIT Press.

Criado-Perez, Caroline. 2020. *Invisible Women: Exposing Data Bias in a World Designed for Men*. London: Vintage.

Crossley, Nick. 2007. "Researching Embodiment by Way of 'Body Techniques.'" *The Sociological Review* 55 (1_suppl): 80–94. https://doi.org/10.1111/j.1467-954X.2007.00694.x.

Csordas, Thomas J. 1990. "Embodiment as a Paradigm for Anthropology." *Ethos* 18 (1): 5–47.

———. 1993. "Somatic Modes of Attention." *Cultural Anthropology* 8 (2): 135–56.

Dahms, Sibylle, Claudia Jeschke, and Monika Woitas, eds. 2001. *Tanz*. MGG Prisma. Kassel : Stuttgart: Bärenreiter ; Metzler.

D'Andrade, Roy Goodwin. 1981. "The Cultural Part of Cognition." *Cognitive Science* 5 (3): 179–95. https://doi.org/10.1207/s15516709cog0503_1.

Daston, Lorraine. 2009. "Science Studies and the History of Science." *Critical Inquiry* 35 (4): 798–813. https://doi.org/10.1086/599584.

Daston, Lorraine, and Peter Galison. 2010. *Objectivity*. 1. paperback ed. New York, NY: Zone Books.

Dehue, Trudy. 2004. In *Kultur Im Experiment*, edited by Henning Schmidgen, Peter Geimer, Sven Dierig, and Casey Alt, 82–101. Berlin: Kulturverlag Kadmos.

Desjarlais, Robert, and C. Jason Throop. 2011. "Phenomenological Approaches in Anthropology." *Annual Review of Anthropology* 40 (1): 87–102. https://doi.org/10.1146/annurev-anthro-092010-153345.

Dewey, John. 1938. *Experience and Education*. New York: Macmillan.

Dippel, Anne. 2022. "Ludutopia. Elemente Einer Kulturwissenschaftlichen Spieltheorie." Habilitation. Jena.

Downey, Greg. 2005. *Learning Capoeira: Lessons in Cunning from an Afro-Brazilian Art*. Oxford ; New York: Oxford University Press.

———. 2008. "Scaffolding Imitation in Capoeira: Physical Education and Enculturation in an Afro-Brazilian Art." *American Anthropologist* 110 (2): 204–13.

———. 2010. "'Practice without Theory': A Neuroanthropological Perspective on Embodied Learning." *Journal of the Royal Anthropological Institute* 16 (May): S22–40. https://doi.org/10.1111/j.1467-9655.2010.01608.x.

Dreyfus, Hubert L. 2016. *Skillful Coping: Essays on the Phenomenology of Everyday Perception and Action*. Edited by Mark A. Wrathall. First published in paperback. Oxford New York, NY: Oxford University Press.

Dunham, Katherine. 1985. "Excerpts From the Dances of Haiti: Function." *Journal of Black Studies* 15 (4): 357–79.

Durkheim, Émile, Carol Cosman, and Mark Sydney Cladis. 2008. *The Elementary Forms of Religious Life*. Oxford World's Classics. Oxford: Oxford University Press.

Eddy, Martha. 2002. "Somatic Practices and Dance: Global Influences." *Dance Research Journal* 34 (2): 46. https://doi.org/10.2307/1478459.

———. 2009. "A Brief History of Somatic Practices and Dance: *Historical Development of the Field of Somatic Education and Its Relationship to Dance*." *Journal of Dance & Somatic Practices* 1 (1): 5–27. https://doi.org/10.1386/jdsp.1.1.5_1.

Elias, Norbert. 2000. *The Civilizing Process: Sociogenetic and Psychogenetic Investigations*. Edited by Eric Dunning, Johan Goudsblom, and Stephen Mennell. Rev. ed. Oxford ; Malden, Mass: Blackwell Publishers.

Farnell, B. 1999. "Moving Bodies, Acting Selves." *Annual Review of Anthropology* 28 (1): 341–73. https://doi.org/10.1146/annurev.anthro.28.1.341.

Farnell, Brenda, and Charles R. Varela. 2008. "The Second Somatic Revolution [1]." *Journal for the Theory of Social Behaviour* 38 (3): 215–40. https://doi.org/10.1111/j.1468-5914.2008.00369.x.

Farquhar, Judith. 2019. *Knowing Practice: The Clinical Encounter Of Chinese Medicine*. New York: Routledge. https://doi.org/10.4324/9780429499449.

Fleischle-Braun, Claudia. 2016. "Das Erbe Der Tanzmoderne Im Zeitgenössischen Kontext Ein Beispiel Kooperativer Praxisforschung." In *Tanzpraxis in Der Forschung - Tanz Als Forschungspraxis*, edited by Susanne Quinten and Stephanie Schroedter, 49–60. transcript Verlag. https://doi.org/10.14361/9783839436028-004.

Foucault, Michel. 1995. *Discipline and Punish: The Birth of the Prison*. 2nd Vintage Books ed. New York: Vintage Books.

Franklin, L. R. 2005. "Exploratory Experiments." *Philosophy of Science* 72 (5): 888–99. https://doi.org/10.1086/508117.

Fridland, Ellen. 2014. "They've Lost Control: Reflections on Skill." *Synthese* 191 (12): 2729–50. https://doi.org/10.1007/s11229-014-0411-8.

———. 2017. "Skill and Motor Control: Intelligence All the Way Down." *Philosophical Studies* 174 (6): 1539–60. https://doi.org/10.1007/s11098-016-0771-7.

Fuchs, Thomas. 2017. "Intercorporeality and Interaffectivity." In *Intercorporeality: Emerging Socialities in Interaction*, edited by Christian Meyer, Jürgen Streeck, and J. Scott Jordan, 3–24. Foundations of Human Interaction. New York, NY: Oxford University Press.

Fuchs, Thomas, and Hanne De Jaegher. 2009a. "Enactive Intersubjectivity: Participatory Sense-Making and Mutual Incorporation." *Phenomenology and the Cognitive Sciences* 8 (4): 465–86. https://doi.org/10.1007/s11097-009-9136-4.

———. 2009b. "Enactive Intersubjectivity: Participatory Sense-Making and Mutual Incorporation." *Phenomenology and the Cognitive Sciences* 8 (4): 465–86. https://doi.org/10.1007/s11097-009-9136-4.

Gehm, Sabine, Pirkko Husemann, and Katharina von Wilcke, eds. 2007. *Wissen in Bewegung: Perspektiven Der Künstlerischen Und Wissenschaftlichen Forschung Im Tanz*. transcript Verlag. https://doi.org/10.1515/9783839408087.

Geurts, Kathryn Linn. 2002. *Culture and the Senses: Bodily Ways of Knowing in an African Community*. Ethnographic Studies in Subjectivity 3. Berkeley: University of California Press.

Gibson, Eleanor. 1994. *An Odyssey in Learning and Perception*. Cambridge, Mass: MIT Press. https://mitpress.mit.edu/9780262571036/an-odyssey-in-learning-and-perception/.

Gibson, James J. 1986. *The Ecological Approach to Visual Perception*. Hillsdale (N.J.) London: L. Erlbaum.

Goodwin, Charles. 1979. "The Interactive Construction of a Sentence in Natural Conversation." In *Everyday Language: Studies in Ethnomethodology*, 97–121. New York: Irvington Publishers.

Goppelsröder, Fabian, and Markus Rautzenberg. 2016. "Bateson Und Das Computerspiel Ein Gespräch Über Das Phantasma Der Berechenbarkeit." In *Digitale Spiele Im Diskurs*, edited by Thorsten Junge and Dennis Clausen.

Grau, Andree. 1993. "John Blacking and the Development of Dance Anthropology in the United Kingdom." *Dance Research Journal* 25 (2): 21. https://doi.org/10.2307/1478551.

Grosz, E. A. 1994. *Volatile Bodies: Toward a Corporeal Feminism*. Theories of Representation and Difference. Bloomington: Indiana University Press.

Guenther, Lisa. 2013. *Solitary Confinement: Social Death and Its Afterlives*. Minneapolis: University Of Minnesota Press.

Haarmann, Anke. 2019. *Artistic Research: Eine Epistemologische Ästhetik*. Edition Transcript, Band 4. Bielefeld: Transcript.

Hanna, Judith Lynne. 1987. *To Dance Is Human: A Theory of Nonverbal Communication*. Chicago: University of Chicago Press.

Hannula, Mika, Juha Suoranta, and Tere Vadén. 2014. *Artistic Research Methodology: Narrative, Power and the Public*. Critical Qualitative Research, Vol. 15. New York: Peter Lang.

Haraway, Donna. 1984. "Teddy Bear Patriarchy: Taxidermy in the Garden of Eden, New York City, 1908-1936." *Social Text*, no. 11: 20. https://doi.org/10.2307/466593.

———. 1988. "Situated Knowledges: The Science Question in Feminism and the Privilege of Partial Perspective." *Feminist Studies* 14 (3): 575. https://doi.org/10.2307/3178066.

———. 2013. *Simians, Cyborgs, and Women: The Reinvention of Nature.* Florence: Taylor and Francis. http://qut.eblib.com.au/patron/FullRecord.aspx?p=1195818.

Haraway, Donna Jeanne. 2006. *Primate Visions: Gender, Race, and Nature in the World of Modern Science*. New York: Routledge.

Harding, Sandra. 2008. *Sciences from Below: Feminisms, Postcolonialities, and Modernities*. Next Wave: New Directions in Women's Studies. Durham, NC: Duke University Press.

Hardt, Yvonne. 2016. "Das Erbe der Tanzmoderne im zeitgenössischen Kontext." In *Praxis begreifen. Eine praxeologische Perspektive auf Praktiken und Episteme des Wissens und*

Forschens im Kontext tänzerischer Vermittlung., edited by Susanne Quinten and Stephanie Schroedter, 155–70. Jahrbuch TanzForschung 2016. Bielefeld: Transcript.

Harney, Stefano, and Fred Moten. 2013. *The Undercommons: Fugitive Planning & Black Study*. Wivenhoe New York Port Watson: Minor Compositions.

Harrington, Anne. 1996. *Reenchanted Science: Holism in German Culture from Wilhelm II to Hitler*. Princeton (N. J.): Princeton university press.

Haueis, Philipp. 2021. "The Death of the Cortical Column? Patchwork Structure and Conceptual Retirement in Neuroscientific Practice." *Studies in History and Philosophy of Science Part A* 85 (February): 101–13. https://doi.org/10.1016/j.shpsa.2020.09.010.

Heinold, Ehrhardt, and Günther Grosser, eds. 2007. *Hellerau leuchtete: Zeitzeugenberichte und Erinnerungen ; ein Lesebuch*. Husum: Verlag der Kunst Dresden Ingwert Paulsen jr.

Henke, Silvia, Nicolaj van der Meulen, Dieter Mersch, Thomas Strässle, and Jörg Wiesel. 2020. *Manifesto of Artistic Research: A Defense against Its Acvocates*. 1. Auflage. Denkt Kunst. Zurich: Diaphanes.

Himberg, Tommi, Julien Laroche, Romain Bigé, Megan Buchkowski, and Asaf Bachrach. 2018. "Coordinated Interpersonal Behaviour in Collective Dance Improvisation: The Aesthetics of Kinaesthetic Togetherness." *Behavioral Sciences* 8 (2): 23. https://doi.org/10.3390/bs8020023.

Howes, David, ed. 2009. *The Sixth Sense Reader*. Sensory Formations. Oxford ; New York: Berg.

Howes, David, and Constance Classen, eds. 2013. *Ways of Sensing: Understanding the Senses In Society*. London: Routledge. https://www.routledge.com/Ways-of-Sensing-Understanding-the-Senses-In-Society/Howes-Classen/p/book/9780415697156.

Hufendiek, Rebekka. 2016. *Embodied Emotions: A Naturalist Approach to a Normative Phenomenon*. First edition. Routledge Studies in Contemporary Philosophy 76. New York: Routledge, Taylor & Francis Group.

Huschka, Sabine. 2009. *Wissenskultur Tanz: historische und zeitgenössische Vermittlungsakte zwischen Praktiken und Diskursen*. TanzScripte 15. Bielefeld: Transcript.

Ingold, Tim. 2004. "Culture on the Ground: The World Perceived Through the Feet." *Journal of Material Culture* 9 (3): 315–40. https://doi.org/10.1177/1359183504046896.

———. 2011. *The Perception of the Environment: Essays on Livelihood, Dwelling and Skill*. London ; New York: Routledge, Taylor & Francis Group.

———. 2013. *Making: Anthropology, Archaeology, Art and Architecture*. London ; New York: Routledge.

Jackson, Michael. 1995. *At Home in the World*. Durham: Duke University Press.

James, William. 1890. *The Principles of Psychology, Vol I.* New York: Henry Holt and Co. https://doi.org/10.1037/10538-000.

Jaques-Dalcroze, Émile. 1920. *The Jaques-Dalcroze Method of Eurhythmics. Rhythmic Movement Vol 1*. Vol. 1. London: Novello.

Johnson, Don, ed. 1995. *Bone, Breath & Gesture: Practices of Embodiment*. Io, no. 51. Berkeley, Calif. : San Francisco, Calif: North Atlantic Books ; California Institute of Integral Studies.

Kaeppler, Adrienne L. 1978. "Dance in Anthropological Perspective." *Annual Review of Anthropology* 7: 31–49.

———. 1993. *Poetry in Motion: Studies of Tongan Dance*. 1st ed. Tonga: Vava'u Press.

Kahneman, Daniel. 1973. *Attention and Effort*. Prentice-Hall Series in Experimental Psychology. Englewood Cliffs, N.J: Prentice-Hall.

Kaiser, David. 2011. *How the Hippies Saved Physics: Science, Counterculture, and the Quantum Revival*. 1st ed. New York: W.W. Norton.

Kant, Immanuel. 1987. *Critique of Judgment*. Edited by Werner S. Pluhar. Indianapolis, Ind: Hackett Pub. Co.

Katan, Einav. 2016. *Embodied Philosophy in Dance: Gaga and Ohad Naharin's Movement Research*. Performance Philosophy. London: Palgrave Macmillan.

Katan-Schmid, Einav. 2016. "Reimagining the Body. Attunement of Intentionality and Bodily Feelings." In *Tanzpraxis in der Forschung - Tanz als Forschungspraxis. Choreographie, Improvisation, Exploration*, edited by Susanne Quinten and Stephanie Schroedter, 135–42. Jahrbuch TanzForschung 2016. Bielefeld: Transcript.

Keilson, Ana Isabel. 2017. "Making Dance Modern: Knowledge, Politics, and German Modern Dance, 1890 – 1927." Columbia University. https://academiccommons.columbia.edu/doi/10.7916/D84J0SDP.

———. 2019. "The Embodied Conservatism of Rudolf Laban, 1919–1926." *Dance Research Journal* 51 (2): 18–34. https://doi.org/10.1017/S0149767719000160.

Keller, Evelyn Fox. 1995. *Reflections on Gender and Science*. 10th anniversary edition. New Haven: Yale University Press.

Kimmel, Michael. 2015. "Embodied (Micro-)Skills in Tango Improvisation: How a Collaborative Behavioral Arc Comes About." In *Das Entgegenkommende Denken*, edited by

Franz Engel and Sabine Marienberg, 57–74. De Gruyter. https://doi.org/10.1515/9783110430899-005.

Kimmel, Michael, Dayana Hristova, and Kerstin Kussmaul. 2018. "Sources of Embodied Creativity: Interactivity and Ideation in Contact Improvisation." *Behavioral Sciences* 8 (6): 52. https://doi.org/10.3390/bs8060052.

King, Anthony. 2000. "Thinking with Bourdieu against Bourdieu: A 'Practical' Critique of the Habitus." *Sociological Theory* 18 (3): 417–33. https://doi.org/10.1111/0735-2751.00109.

Kirsh, David. 2011. "How Marking in Dance Constitutes Thinking with the Body." *The External Mind*, 183–214.

Klein, Gabriele. 2014. "Praktiken des Tanzens und des Forschens. Bruchstücke einer praxeologischen Tanzwissenschaft." In *Visionäre Bildungskonzepte im Tanz: kulturpolitisch handeln, tanzkulturell bilden, forschen und reflektieren*, edited by Margrit Bischof and Regula Nyffeler, 103–15. Zürich: Chronos.

Kleinschmidt, Katarina. 2018. *Artistic research als Wissensgefüge: eine Praxeologie des Probens im zeitgenössischen Tanz*. München: Epodium.

Knorr-Cetina, Karin. 2005. "The Fabrication of Facts. Towards a Microsociology of Knowledge." In *Knowledge. Critical Concepts*, edited by Nico Stehr and Rainer Grundmann, 265–84. Routledge.

Köbschall, Saskia. 2019. "DEUTSCH, NATÜRLICH UND NACKT? Die Lebensreform und ihre kolonialen Verflechtungen / GERMAN, NATURAL AND NAKED? The Colonial Entanglements of the Life Reform – Art Education Research." *e-journal des Institute for Art Education* (blog). 2019. https://blog.zhdk.ch/iaejournal/2019/02/26/n15_deutsch-natuerlich-und-nackt-die-lebensreform-und-ihre-kolonialen-verflechtungen/.

Kuhn, Thomas S. 1996. *The Structure of Scientific Revolutions*. 3rd ed. Chicago, IL: University of Chicago Press.

Kuklick, Henrika. 2011. "Personal Equations: Reflections on the History of Fieldwork, with Special Reference to Sociocultural Anthropology." *Isis* 102 (1): 1–33. https://doi.org/10.1086/658655.

Kurath, Gertrude Prokosch. 1960. "Panorama of Dance Ethnology." *Current Anthropology* 1 (3): 233–54.

Kuriyama, Shigehisa. 2011. *The Expressiveness of the Body and the Divergence of Greek and Chinese Medicine*. 1. paperback ed., 4. print. New York: Zone Books.

Kwaschik, Anne. 2019. "Gesellschaftswissen als Zukunftshandeln." *Francia*, December, 189-211 Seiten. https://doi.org/10.11588/FR.2017.0.69008.

Laemmli, Whitney E. 2018. "The Living Record: Alan Lomax and the World Archive of Movement." *History of the Human Sciences* 31 (5): 23–51. https://doi.org/10.1177/0952695118804750.

Latour, Bruno, and Bruno Latour. 1993. *The Pasteurization of France*. First Harvard University Press paperback ed. Cambridge, Mass.: Harvard Univ. Press.

Latour, Bruno, and Steve Woolgar. 1986. *Laboratory Life: The Construction of Scientific Facts*. Princeton, N.J: Princeton University Press.

Little, Nita. 2014. "Dissertation at UC Davic, Performance Studies 'Articulating Presence: Creative Actions of Embodied Attention in Contemporary Dance.'"

Little, Nita, and Joseph Dumit. 2020. "Articulating Presence: Attention Is Tactile." In *Thinking Touch in Partnering and Contact Improvisation: Philosophy, Pedagogy, Practice*, edited by Malaika Sarco-Thomas, 260–79. Newcastle upon Tyne: Cambridge Scholars Publishing.

Lovell, Terry. 2000. "Thinking Feminism with and against Bourdieu." *Feminist Theory* 1 (1): 11–32. https://doi.org/10.1177/14647000022229047.

Luhrmann, T. M. 2012. *When God Talks Back: Understanding the American Evangelical Relationship with God*. 1. Vintage Books ed. New York: Vintage Books.

Lutz, Antoine, and Evan Thompson. 2003. "Neurophenomenology - Integrating Subjective Experience and Brain Dynamics in the Neuroscience of Consciousness." *Journal of Consciousness Studies* 10 (9–10): 31–52.

Mahmood, Saba. 2011. *Politics of Piety: The Islamic Revival and the Feminist Subject*. Princeton University Press. https://doi.org/10.2307/j.ctvct00cf.

Manning, Erin. 2007. *Politics of Touch: Sense, Movement, Sovereignty*. U of Minnesota Press.

———. 2012. *Relationscapes: Movement, Art, Philosophy*. 1. MIT paperback ed. Technologies of Lived Abstraction. Cambridge, Mass.: MIT Press.

———. 2016. *The Minor Gesture*. Thought in the Act. Durham: Duke University Press.

Manning, Susan. 1993. *Ecstasy and the Demon: Feminism and Nationalism in the Dances of Mary Wigman*. Berkeley: University of California Press.

Manning, Susan, and Lucia Ruprecht, eds. 2012. *New German Dance Studies*. Urbana: University of Illinois Press.

Marchand, Trevor H.J. 2010. "Embodied Cognition and Communication: Studies with British Fine Woodworkers." *Journal of the Royal Anthropological Institute* 16 (May): S100–120. https://doi.org/10.1111/j.1467-9655.2010.01612.x.

Mauss, Marcel. 1934. “Techniques of the Body.” *Economy and Society* 2 (1): 70–88. https://doi.org/10.1080/03085147300000003.

Mazzarella, William. 2017. *The Mana of Mass Society*. Chicago Studies in Practices of Meaning. Chicago, IL: University of Chicago Press. https://press.uchicago.edu/ucp/books/book/chicago/M/bo25265716.html.

McCormack, Derek P. 2014. *Refrains for Moving Bodies: Experience and Experiment in Affective Spaces*. Durham, NC: Duke University Press.

McLaughlin, Peter. 1993. “Der neue Experimentalismus in der Wissenschaftstheorie.” In *Die Experimentalisierung des Lebens: Experimentalsysteme in den biologischen Wissenschaften 1850/1950*, edited by Hans-Jörg Rheinberger and Michael Hagner, 207–2018. Berlin: Akademie-Verl.

McNeill, William Hardy. 2009. *Keeping Together in Time: Dance and Drill in Human History*. Nachdr. Cambridge, Mass: Harvard Univ. Press.

McNiff, Shaun, ed. 2013. *Art as Research: Opportunities and Challenges*. Bristol Chicago: Intellect.

Merleau-Ponty, Maurice. 2008. *Signes*. Nachdr. Collection folio Essais 381. Paris: Gallimard.

Merleau-Ponty, Maurice, and Colin Smith. 2006. *Phenomenology of Perception: An Introduction*. Repr. Routledge Classics. London: Routledge.

Mersch, Dieter. 2012. “Kunst als epistemische Praxis.” In *Kunst des Forschens: Praxis eines ästhetischen Denkens*, edited by Elke Bippus and Zürcher Hochschule der Künste, 2. Aufl, 27–47. Schriftenreihe des Instituts für Gegenwartskunst, Zürcher Hochschule der Künste, Bd. 4. Zürich Berlin: Diaphanes.

Meuser, Michael. 2002. “Körper und Sozialität. Zur handlungstheoretischen Fundierung einer Soziologie des Körpers.” In *Körperrepräsentationen. Die Ordnung des Sozialen und der Körper.*, edited by Kornelia Hahn and Michael Meuser, 19–44. Konstanz: UVK.

———. 2004. “Zwischen „Leibvergessenheit“ Und „Körperboom“. Die Soziologie Und Der Körper / Between ‘Body Oblivion’ and ‘Body Boom’: Sociology and the Body.” *Sport Und Gesellschaft* 1 (3): 197–218. https://doi.org/10.1515/sug-2004-0304.

Meyer, Christian, Jürgen Streeck, and J. Scott Jordan, eds. 2017. *Intercorporeality: Emerging Socialities in Interaction*. Foundations of Human Interaction. New York, NY: Oxford University Press.

Misler, Nicoletta. 1996. “A CHOREOLOGICAL LABORATORY.” *Experiment* 2 (1): 169–200. https://doi.org/10.1163/2211730X96X00090.

Möhring, Maren. 2004. *Marmorleiber: Körperbildung in Der Deutschen Nacktkultur (1890-1930)*. Kölner Historische Abhandlungen, Bd. 42. Köln: Böhlau.

Mol, Annemarie. 2002. *The Body Multiple: Ontology in Medical Practice*. Science and Cultural Theory. Durham: Duke University Press.

Müller, Hedwig, and Patricia Stöckemann. 1993. *Jeder Mensch Ist Ein Tänzer: Ausdruckstanz in Deutschland Zwischen 1900 Und 1945*. 1. Aufl. Giessen: Anabas.

Myers, Natasha. 2008. "Molecular Embodiments and the Body-Work of Modeling in Protein Crystallography." *Social Studies of Science* 38 (2): 163–99. https://doi.org/10.1177/0306312707082969.

———. 2015. *Rendering Life Molecular: Models, Modelers, and Excitable Matter*. Experimental Futures. Durham, NC: Duke University Press.

Ness, Sally Ann. 2008. "Bali, the Camera, and Dance: Performance Studies and the Lost Legacy of the Mead/Bateson Collaboration." *The Journal of Asian Studies* 67 (4): 1251–76.

Noë, Alva. 2006. *Action in Perception*. 1. MIT Press paperback ed. Representation and Mind. Cambridge, Mass.: MIT Press.

———. 2010. *Out of Our Heads: Why You Are Not Your Brain, and Other Lessons from the Biology of Consciousness*. 1. paperback ed. New York, NY: Hill & Wang.

———. 2016. *Strange Tools: Art and Human Nature*. First paperback edition. New York: Hill and Wang, a division of Farrar, Straus and Giroux.

Noland, Carrie. 2009. *Agency and Embodiment: Performing Gestures/Producing Culture*. Harvard University Press. https://doi.org/10.4159/9780674054387.

Noland, Carrie, and Sally Ann Ness, eds. 2008. *Migrations of Gesture*. Minneapolis: University of Minnesota Press.

Novack, Cynthia J., and Cynthia Jean Novack. 1990. *Sharing the Dance: Contact Improvisation and American Culture*. New Directions in Anthropological Writing. Madison, Wis: University of Wisconsia Press.

Pallasmaa, Juhani. 2009. *The Thinking Hand: Existential and Embodied Wisdom in Arthitecture*. AD Primers. Chichester, U.K: Wiley.

Paterson, Shona K., Martin Le Tissier, Hester Whyte, Lisa B. Robinson, Kristin Thielking, Mrill Ingram, and John McCord. 2020. "Examining the Potential of Art-Science Collaborations in the Anthropocene: A Case Study of Catching a Wave." *Frontiers in Marine Science* 7. https://www.frontiersin.org/articles/10.3389/fmars.2020.00340.

Pearce, J.M.S. 2010. “Henry Charlton Bastian (1837–1915): Neglected Neurologist and Scientist.” *European Neurology* 63 (2): 73–78. https://doi.org/10.1159/000272941.

Pedersen, Morten Axel, Kristoffer Albris, and Nick Seaver. 2021. “The Political Economy of Attention.” *Annual Review of Anthropology* 50 (1): 309–25. https://doi.org/10.1146/annurev-anthro-101819-110356.

Peter, Frank-Manuel. 2009. “The German Dance Archive, Cologne (Deutsches Tanzarchiv Köln).” *Dance Chronicle* 32 (3): 476–89.

Petitmengin, Claire, and Jean-Philippe Lachaux. 2013. “Microcognitive Science: Bridging Experiential and Neuronal Microdynamics.” *Frontiers in Human Neuroscience* 7. https://doi.org/10.3389/fnhum.2013.00617.

Pickering, Andrew. 1995. *The Mangle of Practice: Time, Agency, and Science*. Chicago, IL: University of Chicago Press. https://press.uchicago.edu/ucp/books/book/chicago/M/bo3642386.html.

Pietsch, Stefanie, and Monica Gillette. 2016. “Das Erbe der Tanzmoderne im zeitgenössischen Kontext.” In *Physical Thinking as Research*, edited by Susanne Quinten and Stephanie Schroedter, 183–96. Jahrbuch TanzForschung 2016. Bielefeld: Transcript.

Polanyi, Michael. 1966. *The Tacit Dimension*. Edited by Amartya Sen. Chicago, IL: University of Chicago Press. https://press.uchicago.edu/ucp/books/book/chicago/T/bo6035368.html.

Poskett, James. 2022. *Horizons: The Global Origins of Modern Science*. First Mariner books edition. Boston: Mariner Books.

Potter, Caroline. 2008a. “Sense of Motion, Senses of Self: Becoming a Dancer.” *Ethnos* 73 (4): 444–65. https://doi.org/10.1080/00141840802563915.

———. 2008b. “Sense of Motion, Senses of Self: Becoming a Dancer.” *Ethnos* 73 (4): 444–65. https://doi.org/10.1080/00141840802563915.

Quinten, Susanne. 2016. “Kinästhetische Kommunikation und Intermediäre Wissenstransformation als Forschungsmethoden in tanzkünstlerischen Kontexten.” In *Tanzpraxis in der Forschung - Tanz als Forschungspraxis. Choreographie, Improvisation, Exploration*, edited by Susanne Quinten and Stephanie Schroedter, 37–47. Jahrbuch TanzForschung 2016. Bielefeld: Transcript.

Quinten, Susanne, and Stephanie Schroedter, eds. 2016. *Tanzpraxis in der Forschung - Tanz als Forschungspraxis: Choreographie, Improvisation, Exploration*. Jahrbuch Tanzforschung, Band 26. Bielefeld: Transcript.

Rabinbach, Anson. 1992. *The Human Motor: Energy, Fatigue, and the Origins of Modernity*. Berkeley: University of California Press.

Radcliffe-Brown, A. R. 1922. *The Andaman Islanders: A Study in Social Anthropology (Anthony Wilkin Studentship Research, 1906.* Cambridge: The University press.

Reckwitz, Andreas. 2020. *Das hybride Subjekt: eine Theorie der Subjektkulturen von der bürgerlichen Moderne zur Postmoderne*. Überarbeitete Neuauflage. suhrkamp taschenbuch wissenschaft 2294. Berlin: Suhrkamp.

Repp, Kevin. 2000. "'More Corporeal, More Concrete': Liberal Humanism, Eugenics, and German Progressives at the Last Fin de Siècle." *The Journal of Modern History* 72 (3): 683–730. https://doi.org/10.1086/316045.

Rheinberger, Hans-Jörg. 2012. "Experiment, Forschung, Kunst. Lecture given at the Annual Meeting of the German Dramaturgical Society." In .

Rheinberger, Hans-Jörg, and Michael Hagner, eds. 1993. *Die Experimentalisierung des Lebens: Experimentalsysteme in den biologischen Wissenschaften 1850/1950*. Berlin: Akademie-Verl.

Ribbat, Christoph. 2020. *Die Atemlehrerin: wie Carola Spitz aus Berlin floh und die Achtsamkeit nach New York mitnahm*. Erste Auflage. Berlin: Suhrkamp.

Roepstorff, Andreas. 2013. "Why Am I Not Just Lovin' Cultural Neuroscience? Toward a Slow Science of Cultural Difference." *Psychological Inquiry* 24 (1): 61–63. https://doi.org/10.1080/1047840X.2013.768058.

Rothfield, Philipa. 2005. "Differentiating Phenomenology and Dance." *Topoi* 24 (1): 43–53. https://doi.org/10.1007/s11245-004-4160-z.

Royce, Anya Peterson. 1977. *The Anthropology of Dance*. Bloomington: Indiana University Press.

———. 2004. *Anthropology of the Performing Arts: Artistry, Virtuosity, and Interpretation in a Cross-Cultural Perspective*. Walnut Creek, CA: AltaMira Press.

Salter, Chris. 2022. *Sensing Machines: How Sensors Shape Our Everyday Life*. Cambridge, Massachusetts: The MIT Press.

Samudra, Jaida Kim. 2008. "Memory in Our Body: Thick Participation and the Translation of Kinesthetic Experience." *American Ethnologist* 35 (4): 665–81.

Schechner, Richard. 2000. *Between Theater and Anthropology*. Nachdr. Philadelphia: Univ. of Pennsylvania Press.

Schlesier, Renate. 2007. "Kulturelle Artefakte in Bewegung: Zur Geschichte Der Anthropologie Des Tanzes." In *Tanz Als Anthropologie*, edited by Christoph Wulf and Gabriele Brandstetter, 132–45. Brill | Fink. https://doi.org/10.30965/9783846743447_009.

Schmidgen, Henning. 2017. *Forschungsmaschinen: Experimente zwischen Wissenschaft und Kunst*. Die fro?hliche Wissenschaft 108. Berlin: Matthes & Seitz.

———. n.d. "The Laboratory." *European History Online* (blog). IEG(http://www.ieg-mainz.de). Accessed April 11, 2023. http://ieg-ego.eu/en/threads/crossroads/knowledge-spaces/henning-schmidgen-laboratory.

Schneider, Arnd, and Christopher Wright, eds. 2010. *Between Art and Anthropology: Contemporary Ethnographic Practice*. English ed. Oxford ; New York: Berg Publishers.

———, eds. 2013. *Anthropology and Art Practice*. London ; New York: Bloomsbury.

Schneider, Joseph W. 2005. *Donna Haraway: Live Theory*. New York: Continuum.

Schneider, Rebecca. 2011. *Performing Remains: Art and War in Times of Theatrical Reenactment*. Abingdon, Oxon ; New York: Routledge.

Schüll, Natasha Dow. 2014. *Addiction by Design: Machine Gambling in Las Vegas*. Princeton: Princeton university press.

Schwartz, Hillel. 1992. "Torque: The New Kinaesthetic of the 20th Century." In *Zone 6: Incorporations*, edited by Jonathan Crary and Sanford Kwinter, 71–127. New York: Zone Books. https://www.zonebooks.org/books/124-zone-6-incorporations.

Scott, Joan W. 1991. "The Evidence of Experience." *Critical Inquiry* 17 (4): 773–97.

Segel, Harold B. 1998. *Body Ascendant: Modernism and the Physical Imperative*. PAJ Books. Baltimore: Johns Hopkins University Press.

Seth, Anil K. n.d. "The Hard Problem of Consciousness Is a Distraction from the Real One | Aeon Essays." Aeon. Accessed October 19, 2021. https://aeon.co/essays/the-hard-problem-of-consciousness-is-a-distraction-from-the-real-one.

Seth, Suman. 2017. "Colonial History and Postcolonial Science Studies." *Radical History Review* 2017 (127): 63–85. https://doi.org/10.1215/01636545-3690882.

Sheets-Johnstone, Maxine. 2011. *The Primacy of Movement*. Expanded 2nd ed. Advances in Consciousness Research (AiCR), v. 82. Amsterdam ; Philadelphia: John Benjamins Pub. Co.

———. 2015a. "Embodiment on Trial: A Phenomenological Investigation." *Continental Philosophy Review* 48 (1): 23–39. https://doi.org/10.1007/s11007-014-9315-z.

———. 2015b. *The Phenomenology of Dance*. Philadelphia: Temple University Press.

Shilling, Chris. 1993. *The Body and Social Theory*. Third edition. Theory, Culture & Society. Los Angeles: Sage.

Shiner, Larry. 2003a. *The Invention of Art: A Cultural History*. Chicago, IL: University of Chicago Press. https://press.uchicago.edu/ucp/books/book/chicago/I/bo3633486.html.

———. 2003b. *The Invention of Art: A Cultural History*. Chicago, IL: University of Chicago Press. https://press.uchicago.edu/ucp/books/book/chicago/I/bo3633486.html.

Shusterman, Richard. 2008. *Body Consciousness: A Philosophy of Mindfulness and Somaesthetics*. Cambridge ; New York: Cambridge University Press.

Silvast, Antti, and Chris Foulds. 2022. "A Sociology of Interdisciplinarity." In *Sociology of Interdisciplinarity: The Dynamics of Energy Research*, 91–120. Cham: Springer International Publishing. https://doi.org/10.1007/978-3-030-88455-0_5.

Simmel, Georg. 1902. "The Metropolis and Modern Life." In *Modernity: Critical Concepts*, edited by Malcolm Waters, 2:35–46. Routledge Critical Concepts. London ; New York: Routledge.

Simon, Herbert A. 1971. "Designing Organizations for an Information-Rich World." In *Computers, Communications, and the Public Interest*, edited by Martin Greenberger, Johns Hopkins University, and Brookings Institution, 37–72. Baltimore: Johns Hopkins Press.

Simon, Herbert A., Karl W. Deutsch, and Martin Shubik. 1971. "Designing Organizations for an Information-Rich World." *Computers, Communications, and the Public Interest*, Computers, communications, and the public interest. - Baltimore, Md. [u.a.] : Johns Hopkins Press, ISBN 0-8018-1135-X. - 1971, p. 37-72, .

Sirotkina, Irina. 2021. "Signs for a Science: Aleksei Sidorov's Choreology." *Studies in East European Thought*, July. https://doi.org/10.1007/s11212-021-09428-z.

Sklar, Deidre. 1994. "Can Bodylore Be Brought to Its Senses?" *The Journal of American Folklore* 107 (423): 9. https://doi.org/10.2307/541070.

———. 2000. "Reprise: On Dance Ethnography." *Dance Research Journal* 32 (1): 70. https://doi.org/10.2307/1478278.

———. 2001. *Dancing with the Virgin: Body and Faith in the Fiesta of Tortugas, New Mexico*. Berkeley: University of California Press.

Sklar, Deirdre. 2008. "Remembering Kinesthesia: An Inquiry into Embodied Cultural Knowledge." In *Migrations of Gesture*, edited by Carrie Noland and Sally Ann Ness, 85–112. Minneapolis: University of Minnesota Press.

Smith, Pamela H. 2022. *From Lived Experience to the Written Word: Reconstructing Practical Knowledge in the Early Modern World*. Chicago, IL: University of Chicago Press. https://press.uchicago.edu/ucp/books/book/chicago/F/bo133038690.html.

Spatz, Ben. 2015. *What a Body Can Do: Technique as Knowledge, Practice as Research*. London ; New York: Routledge.

Stanger, Arabella. 2021. *Dancing on Violent Ground: Utopia as Dispossession in Euro-American Theater Dance*. Performance Works. Evanston, Illinois: Northwestern University Press.

Tarde, Gabriel. 2007. "Economic Psychology." Translated by Alberto Toscano. *Economy and Society* 36 (4): 614–43. https://doi.org/10.1080/03085140701615185.

Thompson, Evan. 2004. "Life and Mind: From Autopoiesis to Neurophenomenology. A Tribute to Francisco Varela." *Phenomenology and the Cognitive Sciences* 3 (4): 381–98. https://doi.org/10.1023/B:PHEN.0000048936.73339.dd.

Todd, Mabel Elsworth. 1937. *The Thinking Body*. Gouldsboro, Me.: Gestalt Journal Press.

transcript. n.d. "Wissen in Bewegung." transcript Verlag. Accessed April 14, 2023. https://www.transcript-verlag.de/978-3-89942-808-7/wissen-in-bewegung/.

Turner, Bryan S. 2008. *The Body & Society: Explorations in Social Theory*. 3rd ed. Theory, Culture & Society. Los Angeles: SAGE.

Turner, Victor W. 1986. *The Anthropology of Performance*. 1st ed. New York: PAJ Publications.

Van der Kolk, Bessel A. 2015. *The Body Keeps the Score: Brain, Mind and Body in the Healing of Trauma*. New York, NY: Penguin Books.

Varela, Franciscio Javier. 1976. "Not One, Not Two." *Coevolution Quarterly*, no. 12: 62–67.

Wacquant, Loïc. 2006. *Body & Soul: Notebooks of an Apprentice Boxer*. Paperback ed. Oxford: Oxford University Press.

Wainwright, Steven P., Clare Williams, and Bryan S. Turner. 2006a. "Varieties of Habitus and the Embodiment of Ballet." *Qualitative Research* 6 (4): 535–58. https://doi.org/10.1177/1468794106068023.

———. 2006b. "Varieties of Habitus and the Embodiment of Ballet." *Qualitative Research* 6 (4): 535–58. https://doi.org/10.1177/1468794106068023.

Williams, Drid. 1991. *Ten Lectures on Theories of the Dance*. Metuchen, N.J: Scarecrow Press.

Williams, Drid, and Roderyk Lange. 1976. "The Nature of Dance. An Anthropological Perspective." *Dance Research Journal* 9 (1): 42. https://doi.org/10.2307/1478352.

Wilmer, Henry H., Lauren E. Sherman, and Jason M. Chein. 2017. "Smartphones and Cognition: A Review of Research Exploring the Links between Mobile Technology Habits and

Cognitive Functioning." *Frontiers in Psychology* 8 (April): 605. https://doi.org/10.3389/fpsyg.2017.00605.

Wilson, Elizabeth A. 2015. *Gut Feminism*. Next Wave : New Directions in Women's Studies. Durham: Duke University Press.

Wilson, Margaret. 2010. "The Re-Tooled Mind: How Culture Re-Engineers Cognition." *Social Cognitive and Affective Neuroscience* 5 (2–3): 180–87. https://doi.org/10.1093/scan/nsp054.

Winance, Myriam. 2006. "Trying Out the Wheelchair: The Mutual Shaping of People and Devices through Adjustment." *Science, Technology, & Human Values* 31 (1): 52–72. https://doi.org/10.1177/0162243905280023.

Wootton, David. 2016. *The Invention of Science: A New History of the Scientific Revolution*. Penguin Books. London: Penguin Books.

Wu, Wayne. 2014. *Attention*. First edition. New Problems of Philosophy. London ; New York: Routledge.

Yakhlef, Ali. 2010. "The Corporeality of Practice-Based Learning." *Organization Studies* 31 (4): 409–30. https://doi.org/10.1177/0170840609357384.

Young, Iris Marion. 2005. *On Female Body Experience: "Throwing like a Girl" and Other Essays*. Studies in Feminist Philosophy. New York: Oxford University Press.