Improvisieren

Playing with Virtual Realities. A Practice-based-Research Experiment in Dancing with Technology

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1 Experiential Point of View: Emergence by Chance

'Playing with Virtual Realities' ('PwVR') is an interdisciplinary practice-based research project (Nelson 2013) that was born by chance inside the experimental zone of the Interdisciplinary Laboratory, an Excellence Cluster of Humboldt University of Berlin. The experimental zone, itself a research experiment, is the open working space of the Interdisciplinary Laboratory, where scholars from approximately forty different disciplines are clustered in working groups of interdisciplinary research collaborations. One of the aims of the experimental zone is to accelerate accidental interactions between the laboratory's multi-disciplinary scholars. The emergence of 'PwVR' followed the pattern set by these circumstances. One day in December 2016, I was writing at my table and observed Christian Stein, a computer scientist, linguist, gamer, and co-founder of the research group 'gamelab.berlin', playing an arcade game (Space Pirate Trainer), while using the VR technology HTC VIVE in the other corner of the room. At the time I saw him, I was working on a lecture presentation which dealt with my research on dance and embodied cognition. The presentation had as its subject the design of spatiality within dance movements. Following from Maurice Merleau-Ponty's *Phenomenology of Perception* and his work on the phenomenology of human motility and spatiality (1945), my argument emphasized the cognitive processes of designing motility in relation to imaginary spatial instructions in Forsythe's 'Improvisation Technologies'. Dealing with Forsythe's example of conducting the body in space, I claimed that his dancing embodies an imaginary score as a motor-motivation. As I argued, while dancing he concentrates on developing precision of motility by integrating imagination (not visible visions) and perceptual affordance within the current environment (Katan-Schmid 2017). Occupied by my development of this argument, I saw Christian Stein playing within VR technology, his vision so absorbed by the game that he was oblivious to the physical surroundings in the studio space. He wore goggles and used controllers in order to shoot and to protect himself from drones that hunted him in a virtual

universe (as I later learnt). His body was alert, playful, and alive and his agile movements covered the space. His motility was precisely articulated. It appeared to me *as if* his movements brought to life an imaginary world which was a creation of his private mind. In practice, however, Stein was playing a game and the images inside the VR guided his activities. His movements followed a realm he could actually see and his alert reactions were immersed in a present vision. Yet, to my eyes, Stein looked as if he were dancing. I felt joy at seeing a fellow researcher move in this scientific environment. Without reflecting on my philosophical views and without thinking of the potential for a mutual research project, I left my working table and started to improvise dancing movements with him. When he left the virtual setting, I told him about my playful experience, in which he participated without knowing. By meeting a good sport who loves to play, by having the appropriate academic environment for experimental explorations, and by following my influential first encounter with a new engaging interaction, the intermedial and interdisciplinary research collaboration of dancing within VR technology 'Playing with Virtual Realities' was born.

2 Experimental Points of View: Systemizing Interdisciplinary, Intermedial, Experiential, and Reflective Explorations

Following from the Aristotelian definitions of the different five types of wisdom, Western culture traditionally distinguishes between artistic practices as a form of technical know-how to scientific knowledge as a type of theoretical—epistemological—know-that (Aristotle 1994–2009, Chatzichristodoulou/Crossley 2016). The traditional outlook on experimentations follows the clear distinction between 'episteme' and 'techne' as well; scientific research experiments are traditionally empiric and aim to observe the natural world through measuring causalities (Radder 2003: 2), while, in contrast, experimental art is reputed to be 'experiential', and therefore not reflective. The division between the poles of a rigidly planned and measured scientific experiment on the one side, and experiential—lived through-experimentalism on the other side, can be seen for example in Lydia Goehr's sharp distinction between 'experiment' and 'experimental'. Her analysis follows Theodor Adorno's analysis of the works of Francis Bacon, the founder of the scientific method in modern science, and John Cage, a leading voice of American experimentalism in art (Shultis 1998). 'PwVR' is a complex experimentation in between those traditions and poles. The project deals

with the experiential media of VR technology and of dancing, and situates these as a source for academic explorations which are theoretically driven. As a form of research, 'PwVR' plays with both theoretical research and aesthetic practices, offering another possibility of experimenting as well as another outlook on the symbiosis between theory and practice in both artistic media and in academic research.

The research project 'PwVR' united two dancers, a philosopher/choreographer, two theatre scholars/dramaturges, two computer scientists/gamers, and two media experience designers to co-explore how the embodied practice of dancing can interact with HTC Vive, a virtual reality headset developed by HTC and Valve Corporation.[1] The venture was initiated by chance, but its establishment as a research project systemizes an exchange between the scholars, the artists, the artistic practice, the theoretical questioning, and the technology. The core of our research is practice-based. We deal with VR technology and with creative techniques (gaming, dancing, and performing in front of an audience) as experiential sources for embodied explorations and reflections. So far, the project has had three interdisciplinary weekly workshops of inquiry into possible exchanges of dancing with VR technology, which resulted in a performance publication and a further symposium with experts from across disciplines.[2] The project's name implies our intentions for exchange and the core of our investigation. Accordingly, VR technology is our medium of research, but the play is not merely with the technology, but with a diversity of bodies of knowledge and with the virtual surplus each practice generates. Practically, using the medium of VR as a metaphor for virtual perceptions which are provoked by a technology, our hypothesis and enquiry dealt with the epistemologies as they are generated by practices and techniques (Mauss 1994, Rheinberger 1997, Miller et al. 2008, Hoel 2012).

An inquiry into virtual reality as a metaphor for a private vision and for epistemology was primarily performed through practice-based knowledge in dance. It followed my philosophical investigation on visual imageries as made-up instructions for movements in dancing (Katan-Schmid 2016, 2017). In Forsythe's 'Improvisation Technologies', for example, dancers playfully deconstruct geometrical patterns within their bodies and their kinespheres. In the CD-ROM publication *Improvisation Technologies: A Tool for the Analytical Dance Eye*, Forsythe draws imaginary lines in order to

1 Research trailer of 'PwVR': https://www.youtube.com/watch?v=YcGdKuUhMf4 (Accessed: July 30, 2018)
2 To watch the complete choreographic work online: https://www.youtube.com/watch?v=2r_LOG7TaQA (Accessed: July 30, 2018)

explain the invisible imageries, with which his body interacts (Forsythe/Haffner 2012). In the CD-ROM, his imageries are animated and assume a visible graphic shape. The annotations illustrate how his dance movements are produced in relation to made-up triggers for decision-making, which are clear and immediately available to him. However, those annotations are interpretations by Paul Kaiser, the annotator, after Forsythe was filmed. Playing with the new possibilities of the VR technology, we could play differently with the investigation of mental imageries during the time of their development by the dancers as they dance. The VR technology we used initiated a new explorative question: "what if dancers can see the score of their dancing?" As a metaphor, the VR became a space for the dancer to step into their own minds.

Staging dancing with VR as a performance-publication enabled us to work systematically on the alternation between hypotheses and their fulfillments. We could experiment with relationships between the visions of dancers, their bodily movements, and their expressivity. Following cultural examples of dance notations and annotations (Laban 1956, Forsythe/Haffner 2012, deLahunta/Hennermann 2013), we looked first for the opportunity to draw the score of dancing. We used the VR application Tilt Brush by Google, which was designed for drawing in a three-dimensional environment. The dancers wore the VR gear and used the controllers in order to draw lines, which (supposedly) illustrate their visions. Additionally, following on from the initial chance of seeing the gamer as dancer while he was playing with the application Space Pirate Trainer in the experimental zone, we further explored how dancers move in relation to an immersive virtual environment in an arcade game. While the dancers were moving in the virtual space, we projected the point of view of their gaze (their goggles function as a camera), so the other scholars in the room could see what the dancers see. After each session of exploring dancing within VR application, we interviewed all the participants, dancers, as well as the other scholars, and documented those interviews on video. The questionnaire always included the same six questions, which led to reflections on bodily awareness, imaginary interactions, and decision-making, as those followed my initial theory on embodied cognition in dancing.[3] In addition to the fixed set of questions, we started each day of the workshop with a warm-up exercise, sharing

3 The six questions we asked are:
— How did you feel your body in the experience?
— How did you interact with the image in the VR?
— Did you follow an image which was not present in the VR?
— What was your main instruction for decision-making?
— How did the experience affect your emotions?
— Do you have further reflections and thoughts which you'd like to share?

our thoughts by answering two daily questions, which were inspired by former experiences and discussions between us.[4]

We used the questionnaire as a platform to observe and reflect on our actions. The dancers, Nitsan Margaliot and Lisanne Goodhue, reflected, for example, on their movements in Space Pirate Trainer as a reaction to the movement of the virtual spaceships, rather than a conscious instance of decision-making. Alternatively, for Goodhue, at first, seeing the virtual environment in Tilt Brush was initially a paralyzing experience; she either followed her gaze and forgot to dance, or danced while closing her eyes. Another layer of analysis dealt with the gazes of the other scholars as external viewers. Ramona Mosse, for example, a dramaturge in the research group, and I described our lack of interest in what the dancers do in Space Pirate Trainer, as long as we could see the projection of their experiences. Regarding the first experiences of Goodhue with the VR application Tilt Brush, the scholars in the room found her bodily posture sensitive and expressive, although she was paralyzed by the virtual environment and did not move much. When she danced with her eyes closed, without knowing how to define it, I felt that her dance was beautiful, but the projection of the images from the goggles was not compelling. After Goodhue reflected on her decision to close her eyes, we understood the lack of directed gaze and agency in the images that were projected. The questionnaires allowed us to share our visions. They also enabled us to exchange knowledge and to expand the practice we created in terms of design. Sabiha Ghellal, for instance, a media experience designer, found the experience in Tilt Brush ambiguous, while the choices of the dancers in Space Pirate Trainer are prescribed by the setting of the virtual space (Ghellal 2017). Relying on the definition of expression by the American pragmatist John Dewey (Dewey 1934: 62),[5] I explained the lack of interest in watching the activity of the dancers as losing the appearance of a development of meaning. Together, we concluded that, in order to suit dancing, the experiences within Tilt-Brush are too ambiguous and therefore need a clear structure which would allow the dancers to incorporate their visions as motivations for movements and to integrate them within their decision-making. We also realized that the inte-

4 A few examples of these questions are:
— What moves you?
— When are you the most immersed in what you do?
— What is your best technique?
— How do you use virtual spheres?
— Are there virtual spheres in your life which are not technological?

5 "To express is to stay by, to carry forward in development, to work out to completion" (Dewey 1980:62).

Fig. 1, 2. Nitsan Margaliot plays/dances within Space Pirate Trainer. Meik Ramey and Norbert Schröck help to operate the technology.

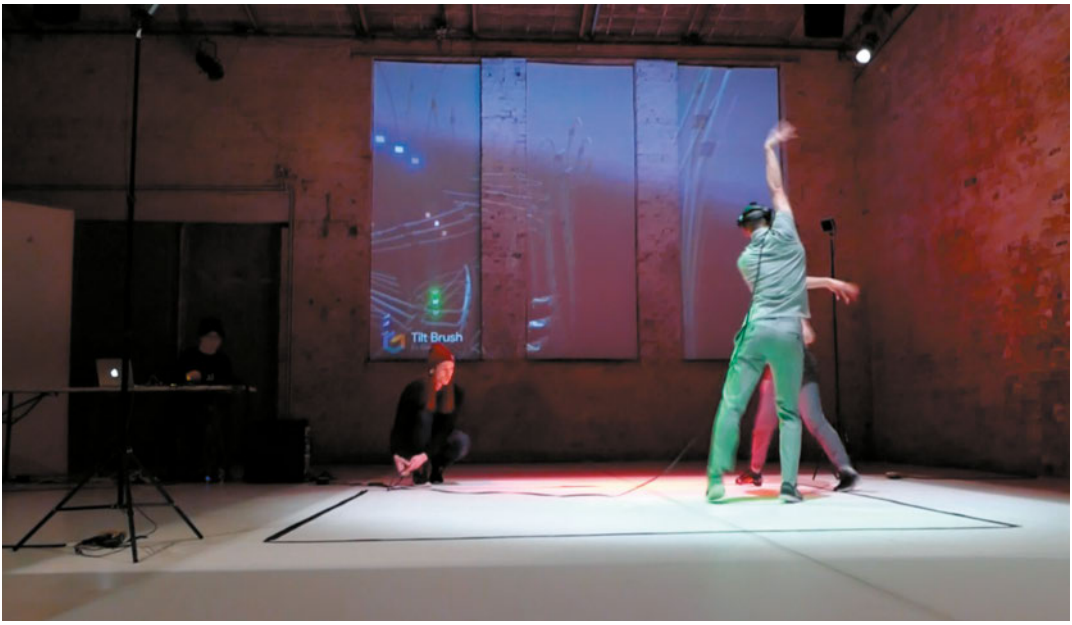

Fig. 3, 4. Nitsan Margaliot and Lisanne Goodhue interact within Tilt Brush as virtual drawing and as dance scores. Meik Ramey and Norbert Schröck help to operate the technology.

gration of the gamers in Space Pirate Trainer was too immersive on one side of our experience, and it is thus necessary to deconstruct interaction with the game and to play with other information outside of the virtual environment. The experiences, reflections, and analysis led us to compose a new practice which interacts dancing and playing with the VR technology on an equal basis. Our mixed exchanges also led us to question our intentions and to reconsider definitions such as 'immersion' and 'expressivity' in order to analyze and to glean explanations of why and when they appear as experiential phenomena.

In 'PwVR', we explored bodies of knowledge via both their media of configuration (VR technology, dance, dramaturgy, performance studies, philosophy, and theories of experience design) and their agencies of knowing (the researchers and the practitioners involved in the project). The questions we asked, and our intermedial explorations, emphasized our assumption and approach that the knowledge we interact with is not external to us. A core motivation of the research experiment was to co-explore our knowledge systems. We aimed to use the technology to visualize tacit invisible elements of our knowing (like mental imageries in dance), and we used the resulting discussions among ourselves to illuminate our perceptual experiences with reflections and explanations. On the one hand, our interdisciplinary ambition was to discover and encounter the knowledge of our peers, and, on the other, the aim was to reflect on our own processes of knowing, and to understand how our practices shape them.

During the research process, I was aware that encountering knowledge is a regulative idea for a continuous investigation, rather than a mission to achieve its ultimate comprehensive result. Knowledge is possessed and embodied by humans and media and is thus fragmentary and contextual. The act of knowing can be neither absolute, nor eternal (Chatzichristodoulou/Crossley 2016: 283). The introspective mission of encountering one's own patterns and habits of thoughts, and the aspiration to understand other people's perspectives form part of the challenges of sciences, media design, artistic practices, and philosophies, as well as political concerns, and our practice could not aspire to give a stable answer to those challenges. Moreover, thus far our practice had been highly problematic. However, these problems have been creatively directing the research, since the collaborative work seeks to find mutual solutions. The group's joint efforts resulted in advanced insights we could not reach alone. In the early stage of our research, we were able to ascertain that the VR technology did not reveal the imageries of the

dancers, although there were times when the dancers did identify with the technology.[6] The VR technology created a reversed realm for interaction; the score became visible while the body was invisible, and the dancers had to imagine their own physical form. We found that we needed to layer the activity of the dancers with instructions that are expressed both in the VR and in the dancers' imagination toward their bodily feelings. In practice, we created a layered exchange between the sensory information in the VR and the bodily feelings the dancers initiate. In the research, theoretical knowledge induced practical problems, while another layer of theoretical thinking offered a direction for solutions. The pattern of the process was: theoretical hypothesis and questioning → problems within practice → reflecting on our instinctive feelings regarding those problems → theoretical explanations of our instinctive feelings → a new hypothesis for how to balance the practice → changing the practice → problem considered is solved (and new research question emerges). Thus, we used the exchange between theory and practice in order to advance both.

Returning to the distinction between the rigidity of experiments and the indefiniteness of experimentalism, these poles fall within the tension of knowledge in any media of knowing, which aims to create attentive honesty by bracketing old definitions (Husserl 1997: 184). Broadly, the wish to transgress traditions and to move beyond a mere confirmation of hypotheses and former knowing is a common challenge for experiments in both science and art. Hans-Jörg Rheinberger advocates experimental culture, arguing that its concept "should allow historians of science to write the history of research domains free of the burden of disciplinary history" (Rheinberger 2008: 22). Ludger Schwarte (2012: 187) defines the beginning of aesthetic experimentalism "when the parameters of a given aesthetic praxis are broken, suspended or transcended" (translated in: De Assis 2015: 7). Correspondingly, although dealing with Bacon the empiricist and Cage the artist as the two poles of 'experiment' and 'experimentalism', neither Adorno nor Goehr understand the first pole as merely scientific and the other as solely artistic. Instead, they try "to capture the sense of what is lost in experiments when they become too controlled and of what is lost in experimentalism when it travels too superficially under the naturalizing banner of freedom from human constraint" (Goehr 2015: 37—38). According to Goehr, Adorno's criticism on Cage's experimentalism and on Bacon's scientific ambition to observe the world as it objectively is, is based on doubts regarding whether a natural mode of experience

6 Margaliot observed that when the technology was disconnected he felt as if his own brain did not function.

is possible in a world in which rigid cultural structures have already been performed (Goehr 2015: 37).

Institutionally 'PwVR' cannot be considered as an act of resistance, since it has both the context of the Interdisciplinary Laboratory, in which experiments for finding new interdisciplinary methodologies are encouraged, and also stands side by side with current interdisciplinary and intermedial research fashions (Miller et al. 2008, Chatzichristodoulou/Crossley 2016, Aquilina/Sarco-Thomas 2017). Nevertheless, I emphasize the revolutionary stance of 'PwVR' in avoiding hierarchical attitudes toward types of knowing. We consider the reflective knowing of dancers as equal to the knowledge of the other scholars, and relate the experience of everyone as relevant perspectives for discussing and analyzing problems and possibilities. We attempt to grasp the knowledge incorporated by artistic practices and technology by interfering and playing with our observations, practical habits, and theoretical assumptions. This effort acknowledges Adorno's criticism on the impossibility of performing genuine experiences within a world of pre-defined categories, without accepting his pessimistic voice as our answer. Instead of aiming to liberate ourselves from the constraints of our knowledge systems, or to surrender to the doom of our own firmness, we played with our knowing as sources for new experiences and for new knowledge. Our task for knowing is to remain open-minded to the knowledge of others and to notice how it interferes, affects, and extends our hypotheses, habits, and perceptions.

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Dancers-researchers: Lisanne Goodhue, Nitsan Margaliot
Technical assistance-researchers: Meik Ramey, Norbert Schröck
Creative team-researchers: Sabiha Ghellal, Ramona Mosse, Christian Stein, Thomas Lilge.

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