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Difficulties in Merging Methodological Demands and Artistic Conventions—"Artist's Neurophysiology in Performance" Project Case

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Abstract

Contemporary development of research methods and tools is often conducive to ambitious art studies, in which the research methodology and study protocol are the result of negotiations between creative and research strategies. The article discusses the key sources, possibilities, and threats of interdisciplinary projects often referred to as practice-as-research. The following comparison of the orders of the scientific methodology and the artistic convention allows one to show the similarities and potential points of contact between science and art, which are independent of the different values and methods of evaluation in both of these areas. The research-based practice model by Pil Hansen and Bruce Barton is also presented as a solution that takes these issues into account. It is also used to present the project of Interdisciplinary Center for New Technologies of the Nicolaus Copernicus University in Toruń and the Art & Science Research Foundation om—organisms and machines in culture (FUNom) the project "Neurophysiology of the Artist in Performance", which is a bold example of the transdisciplinary activities of scientists and researchers. Its content is analyzed through the reports of artists, researchers, and participants taking part in public presentations of the project.

Keywords: performance; practice-as-research; cognitive studies; convention; perception; aesthetics

The development of research tools and technologies allows for their deeper interaction with performing arts. By the same token, it raises interest in them among artists often joined by researchers typically using empirical and quantitative methodological paradigms.

For science, crucial qualities of art—directness, temporality, emergence and ephemerality—make it an attractive subject of study. On the one hand, the cognitive requirements faced by a participant and a creator of a performance tend to be extremely high, and at the same time, they involve competencies considered specifically human at a very high level of complexity: extensive memory, imagination, abstract thinking or the ability to express complex emotions. On the other hand, as such, they make performance one of the last areas of human experience that have not been naturalized yet. Even if a performer can be replaced by a machine, it is still hard to imagine that the latter could become engaged into an aesthetic experience. The spirit in the (human) machine has not yet died, even if its future seems to be doomed (Skalski, 2013). This naturally exacerbates the already difficult challenge of reconciling artistic and aesthetic goals and values with academic ones. However, artists and art researchers do seek for tools and strategies offered by the so-called hard science and are eager to create spaces of exchange between these two discourses.

The are several reasons for artists to embark on such a challenging path. The economic premises are at the lowest, though undoubtedly extremely important, level. On the neoliberal market, art must prove its function and define its impact. It is not always possible to simply calculate the social benefits of art, as it is possible to some extent in the case of art therapy, or to implement and capitalize solutions developed in the creative process, e.g. programs created by new media artists (Haseman, 2006, p. 105). Hence, high hopes are placed in research around cognitive science, which can provide empirical data confirming the importance of art for the lasting health and well-being of the individual and society as a whole. A secondary, though still an economic reason for artists' interest in conducting research, in particular at universities, is the prospect of financial stabilization, particularly appealing to dancers and actors in the face of the impending retirement, as well as the extremely competitive, poorly capitalized art market (Nelson, 2013, p. 19). This is naturally related to the need experienced by artists to deepen (auto) reflection on art and develop a less intuitive conceptual apparatus for talking about their experiences. Such need often dictates the value of the research on the fringes of art and science. Finally, going hand in hand with these needs is the desire to find a way to preserve ephemeral qualities of the work of art hidden in the aesthetic experience. The realization of the latter goal is, however, very problematic. After the *Death of the Author* (Barthes, 2001, pp. 142-148) and the later rise of a strong trend for participatory art and other emancipatory movements of recent centuries in philosophy and politics, the value of an artistic object started to be strongly rec-

ognized as manifested in the brain/mind/soul activity induced by an artistic object. This experience itself is valuable, both from an individual and a social perspective. Accepting such a thesis often leads artists and art researchers to seek for tools of cognitive psychology and even neuropsychology, that seem to offer a possibility of a more direct and objective access to the ephemeral aesthetic/experiential object.

This still incomplete list of reasons that motivate researchers and artists to combine in-depth reflection and laboratory work that I have put together is consistent with the premises of the project "Neurophysiology of the Artist in Performance". In this article I would like to use it to exemplify the tensions between art and science that are, despite common goals and interests, embedded within such projects. The project was run by a joint team of academics from the Nicolaus Copernicus University in Toruń and artists involved/engaged by the Art & Science Research Foundation om—organisms and machines in culture (FUNom). The primary goal of the project was to search for new methods of documenting performance art that would go beyond standard audio-visual forms. The tools used were sound intensity measurement, monitoring and recording of the performer's brain activity (EEG), as well as other physiological parameters such as: body temperature, galvanic skin response (GSR), microscopic photography of the artist's skin before and after the operation and the respiratory rate and heart rate (ECG). The choice of tools suggests that the team's goal was to address the experiential aspects of a performative situation. Traditional tools such as video recording as well as surveys and interviews with event participants were also used independently. The set of recording devices was different for each of the activities depending on their form. Clearly, the tacit assumption of the project was that the experience of its participants, artists and viewers alike, represents the key material body and value of a given artistic situation. This provided a common platform for artists and academics involved. The key goal of the project was pragmatic and focused on a particular aspect of practice. It was formulated without prior, vast theoretical background. Such intuitive, hunch-based research premises link it to strategies known at Western universities since the mid-twentieth century as practice-as-research (PaR). PaR appears to be an adequate theoretical framework for further analysis of the project carried out in Toruń.

Broad definition according to which "PaR involves a research project in which practice is a key method of inquiry and where, in respect of the arts, a practice (creative writing, dance, musical score/performance, theatre/performance, visual exhibition, film or other cultural practice) is submitted as substantial evidence of a research inquiry" was proposed by Robin Nelson (Nelson, 2013, p. 9). In fact, however, it is already an effect of meaningful methodological choices present in Nelson's reflection, and fails to include several dozen differently named terms and sometimes significantly different practices that take into account the involvement of artistic activities in the research process, such as, e.g.,

practice-led research (Hawkins & Wilson, 2017), practice-based research (Candy, 2006), performance as research (Barton, 2017), art-based research (McNiff, 2012), etc. Each of them reveals different possibilities and limitations. Finding oneself in this network of experiences and meanings requires a significant delimitation of what, in the context of expectations of science and art, can be regarded as scientific research and relevant creative/artistic practice meeting the requirements of science.

The word "research"—especially in the Polish context—clearly connotes the experiment, followed by the science and commitment of the academy or at least of people with appropriate education. In its dictionary denotation, however, 'research' covers also expressions suggesting "the activity of finding information about something that you are interested in or need to know about" (Summers, 2006). In this perspective, research can also include browsing the offers of online stores in search for the best deal for a desired coffee machine, but also checking out of curiosity if in the spring storks returned to the neighbours' house as usual. Following this path, Robin Nelson proposes to distinguish three types of research: 1. personal research—learning, sifting through available information, 2. professional research—involving networking, searching for sources and comparing information in order to perform a specific task, 3. academic research—conducting activities aimed at generating new knowledge (Nelson, 2013, p. 25).

Nelson does not mention, however, that from the perspective of the researcher's experience the third type of research is naturally preceded by the other two, very much like in art. For many people, a scientific career begins with personal interests, which at a later stage take the form of a doctoral thesis or a research project. Then, one needs to find a methodology that would match the set goals to demonstrate professionalism in science and research. Only on this basis, there might appear a real possibility of generating new knowledge—at least according to positivist norms. This does not mean, however, that academic research is in some extra-contextual, hierarchical way more valuable. On the contrary, many of the research projects remain completely dead in terms of their impact on the area in which they are conducted. This problem is exposed and addressed particularly by PaR as a strategy designed to discover what normally obscures the privacy of the artist's experience: still a masterful, highly oral way of transferring professional skills to the next generation of creators, or simply the current model of knowledge distribution (Finley, 2008, p. 72).

PaR allows experimental and procedural knowledge to gain some of the qualities possessed by propositional knowledge, but at the same time loses some of the properties characteristic of the creative process: the subject of research, the artist's work in the studio or on stage, no longer remains within their private realm. This does not mean that rehearsals become open or the movement of painter's hand is shown to the public, which for many is not a problem anyway.

The creative processes recognized in anthropological, psychological or, as in some experiments carried out in Toruń, psychophysiological perspectives, are revealed. The artist/researcher must also make every effort to ensure that his action is communicable/comprehensible. In other words, revealing a private sketch of the performance's score is not enough—it should be provided with a context, a kind of theoretical-conceptual framework in a form that enables its reading (Smith & Dean, 2009, p. 45). This is directly related to the ability to verify the knowledge generated in the PaR process. If it is impossible to adopt standard methods of falsification, then at least one must be able to place the material in question in the broader context of earlier discoveries or works. New insights into the processes that unfold in such circumstances should be clearly included, e.g., in choreography documentation and notes or in any other, not necessarily textual form. If, on the other hand, an artist wishes to use quantitative and experimental methods in his laboratory, then he may be forced to make some simplifications. The huge number of variables that influence the "success" of a performance typical of art makes it extremely difficult to identify and document a cause-and-effect link, not only a weak correlation, between, for example, specific actions of the performer and areas of the brain that are simultaneously activated.

Despite such significant alternations that PaR forces in the creative process, art must constantly negotiate the preservation of its autonomy, or some of its individual properties. In addition, there is also a question about the moment when the research process begins. Usually, the first necessary step consists in formulating the problem or research hypothesis. However, as emphasized by Estelle Barret and Barbara Bolt (2010, p. 23), for artists-researchers it can be completely different. Some authors refer somewhat to the myth of creative talent and point out that their designs come from intuition or gut feeling. For others, the stimulus was the obstruction of the creative or didactic process—the moment when they encountered difficulties of a technical or cultural nature and began to systematically look for solutions to them. Indeed, many start with a traditionally defined research problem, but later conduct research relying on their experience rather than structured methodology. Alternatively, the cyclical structure of the research process is also used as in the *action research* paradigm, which involves the following spiral iteration of the process: planning—action—observing—reflection—planning—etc. (Costello, 2011) and at the same time, it keeps in the researcher's field of vision the practice to which she or he returns with each cycle.

In fact, it is this practice that is the key determinant of the methods used in a given research. Both the social, formal and material aspects of a given art form limit the choice of experimental tools that can be used. The *Neurophysiology of the Artist in Performance* project is a clear attempt to cross them, which must mean a certain obstruction of the process, both from the perspective of science and art. However, PaR was born out of the recognition that the

existing discourses are not fully adequate for an in-depth reflection on art (McNiff, 2008, p. 13). At its core, therefore, lies the artist's self-referential turn towards himself, the work or the process of its creation. The ultimate goal of most research conducted in the (performative) practice as research mode is to generate new knowledge about itself (May 2015). Thus, what determines the goals, tools, methods, and performative traditions used in the research is the artist's workshop or, more broadly, the convention in which it operates. Although this term is mainly associated with performing arts—theatre—it still seems to be adequate for most types of performance activities. Patrice Pavis defines the convention very precisely, emphasizing its autopoietic nature:

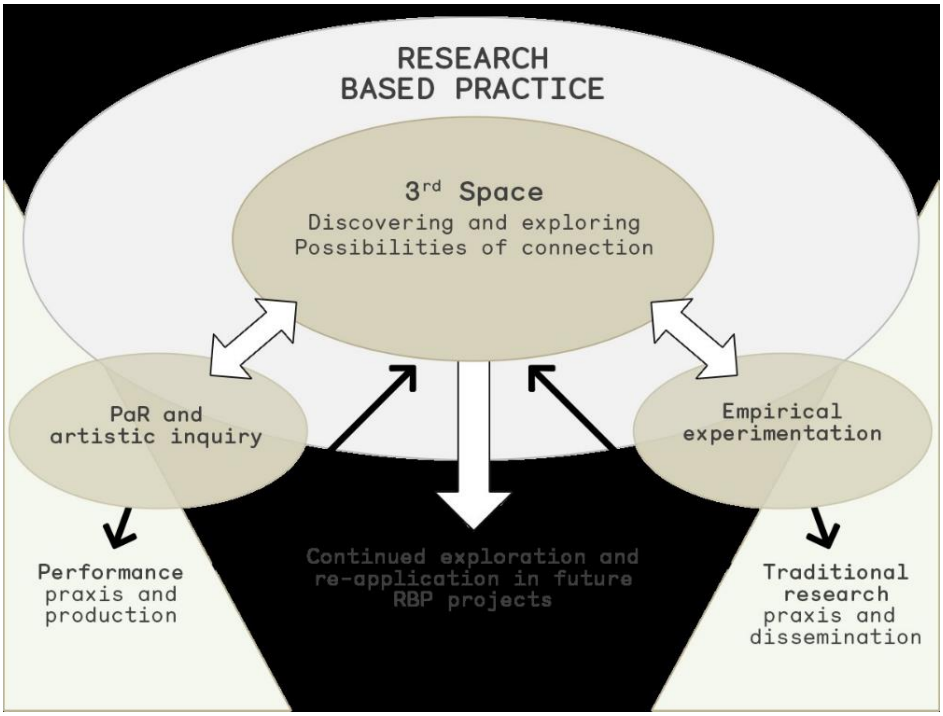
> Conventions are explicit or implicit ideological and aesthetic presuppositions that enable the spectator to receive the acting and the performance. The convention is the pact between the playwright and the audience whereby the former composes and stages his play according to rules that are known to and accepted by the latter. Conventions include everything that the audience and stage must agree upon in order to produce dramatic fiction and pleasure in playacting (Pavis, 1998, p. 78).

The fact that this definition is obviously related to theatrical art does not change its relevance to the performing arts in general. Even if the essence of the *performance art* convention is to transgress the existing agreements, it is due to the awareness of their existence and actuality on the part of both, the recipient and the artist. Theatrical fiction in the spirit of postmodernism is replaced by the relativity and fluid performativity of reality. What remains unchanged, however, is the reference to communication codes familiar to the audience, which makes it possible to convey the ideological and aesthetic content of the work.

In this context, the convention appears as, at least in some respects, the equivalent of research methodology. In their paradigms, both are necessary conditions for effective, acceptable and understandable practice. PaR is therefore a space that requires reconciliation of these two orders. I have signalled before many strategies that can be adopted. None of them is "the best" as they can produce different results depending on the context (Hansen, 2017, p. 122). An example of a solution that seems to be close to the protocol of experiments conducted as part of the artist's Neurophysiology in performance is the proposal by Pil Hansen and Bruce Barton—*research-based practice* (RBP) (Hansen & Barton, 2009). It is a research model that, within the field of PaR:

> (…) crosses multiple disciplines of scholarly and creative inquiry (…). Instead of researching the implicit knowledge and impact of artistic practice primarily using either artistic methods or scholarly and scientific approaches, we were interested in establishing reciprocal feedback channels that might advance all of these research practices. We proposed to set up discipline-specific spaces of inquiry, which are defined by the respective methodological norms and kinds of utility of each discipline involved, but investigating a shared set of questions (Hansen, 2017, p. 32).

The Canadian duo also illustrated their concept in the form of a diagram:



In practice, the application of this model means creating a team that includes representatives of at least two disciplines—one of an artistic nature and the other of an academic one—of high, professional competence. They mark out the broadly defined research/performative field of *praxis* (Nelson, 2013, pp. 40-42) and the tradition of disseminating the results of their findings. Already at the preliminary stage, areas may emerge where the selected methodologies/conventions can inform and enrich each other. These initial data can then be fed into a research project that covers three different but related spaces of activity, with all study participants working in all three of them:

1. A space that focuses on the acquisition and improvement of skills and is guided by carefully selected and rigorously applied artistic strategies. In the context of the above considerations, this space is guided by the broadly understood performative convention.

2. A space that focuses on empirical experiments determined by carefully selected and rigorously applied research methods, developed directly from the adopted methodology.

3. The third RBP space is in fact the initial area of activity. The defined initial parameters of the chosen artistic and scientific disciplines become

> the starting point for stimulated, unconventional and spontaneous interactions to explore possible combinations and applications. The resulting emergent and unshaped connections are then ordered. An attempt is made to create a space for new, transdisciplinary but structured research strategies. At the same time, however, the starting point spaces where more stable and controllable processes can be carried out are sustained. Ultimately, therefore, the research process designed in this way should generate, or at least take into account: 1. A fully-fledged work of art, 2. Academic text presenting the results of empirical research, and 3. Findings potentially manifested in various forms resulting from the fusion of these two orders.

In other words, this process is relatively energy-consuming because it requires the processing of two theoretical and imaginary spaces while producing a third one. The advantage of this approach, however, is the validity of research results in every possible field of their reception. Importantly, however, this may mean, for example, that it will be very difficult to associate a scientific publication resulting from such works with a performance, which was also a source of data for the research. Ideally, the third form of communication of the results will also occur as a result of interaction between art and science. It may not be fully accepted by the orthodox representatives of the former—due to its distance from conventionally defined aesthetics, and the latter—due to the failure to meet scientific requirements resulting directly from the chosen methodology. However, such an unwanted child of divergent parents can bring restoration for both of them.

It seems that this model may be recognized in *Neurophysiology of the Artist in Performance* project. In the form in which it was carried out, it is rather a form of artistic research, which theoreticians consider to be quite a broad form of artistic activities carried out with an increased emphasis on rigour and discipline, but not necessarily aimed at generating new knowledge in the scientific sense (Barrett & Bolt, 2010). The demands of the RBP founders are much more ambitious in this area. Nevertheless, the analysis of the reports from experiments held in Toruń allows us to see a similar intuition in their participants. The recognition of this project as an example of RBP is supported primarily by the structure of the team composed of experienced artists, as well as researchers with great competence in the field of tools and methods used in cognitive research. Both of them consistently implemented activities by their primary selected conventions/methodologies, noting that this is a necessary condition for their success. For example, Wacław Kuczma reports in an interview after his action:

> I knew what to expect but I also did not know, I just tried. The expectations were such that I would be able to do what I committed to do. That it would have such a measurable overtone in their [researchers—ed. T.C.] work (...)

> this performance must be fully realized to the extent that there are physical possibilities[1].

However, as Hansen points out, the concern for the performance to be done as best as possible cannot be both subordinated and separated from the research itself, because it too often makes the dialogue between them one-sided. The ideal situation in the "third space" is to see that in PaR science and art create a rather joint performance. This was also Violetta Kuś's intuition:

> The research itself is a very interesting experience for me, I can describe it as a kind of performance. Even though I am closed in resonance [fMRI—ed. TC], I am watched, people present during the experiment penetrate my head, in a way I expose myself more than during activities in which I have direct contact with the audience. During the research, I try to concentrate, but thoughts are unmanageable matter, so they wander into different areas.

Similarly, when asked about the influence of the apparatus on the course of the performance, Anna Kalwajtys replies:

> It certainly had an aesthetic, visual impact, because I think it created a certain image that, somehow, I suspect was read by the observer. (...) The idea that this apparatus does not interfere with the performance process is a bit utopian because it always interferes and one has to find a place for it in its entirety.

Perhaps one could even go further and notice that although, for example, Kuś did not have any direct contact with the audience, she communicated through the performance she co-created. She was “read” along or as a part of it. Ultimately, it is communication that is crucial for both overlapping spaces. However, there must be consent to their equality in a dialogue. The aporias it generates are recognizable in the accounts of Aleksandra Sojak-Borodo's actions. The artist emphasizes in them that, on the one hand, she tried to fully implement the assumptions of her performance, but on the other hand, she also tried not to move so as not to affect the record of brain imaging devices. Jan Nikadon intervenes in the same account, adding his remark to the answer to the question about the length of the video fragments that the artist watched during the research:

> (...) If they were long and we would play them for a minute, we already know from experience that the stimulation that we can take is just 20-25, 18 seconds. Then the brain just gets used to it and stops processing it anymore, there is habituation. It's like someone outside the window starts working with a jackhammer and it bothers us for a moment and then we catch the fact that an hour ago it started and we basically don't hear it anymore.

[1] The reports of artists and spectators were made available to the author by the organizers of the event. For the purposes of the article, they have been edited and supplemented to make the argument understandable.

In this short remark, the experimenter pointed out several problems faced by RBP. On the one hand, the sensitivity of the devices and protocols of empirical research is often too small for the probably subtle changes brought about by art. This does not mean simply that science is insensitive, but the tools it uses are focused on parameters that are important from the perspective of medicine, i.e. detecting mainly deficits. This issue is addressed by such researchers as Hansen and Ciesielski devising cognitive assessment tools that are ecologically altered to measure certain high cognitive skills of dancers or musicians. When tested with the use of standardized tests, they often score over the existing scale or on a level, which does not allow any statistically reliable comparisons (Ciesielski & Szmytke, 2021; Hansen, 2017). On the other hand, this situation clearly shows the hierarchical relationship that prevails in such projects. What is "scientific" determines the adopted solutions, forcing the "artistic" to be adapted, as if by default.

The aftermath of a similar direction of thinking is the formula of the survey conducted by the artists among participants and creators of performances. They asked short, predetermined questions without looking for an elaboration of often very interesting answers, without making sure whether the "questionnaire" was understandable. As a result, the collected material does not meet the scientific requirements—for example, it is difficult to say whether the respondents understood the concept of flow in the same way, and at the same time, it would be doubtful to use the participants' reports for statistical purposes (there are too few of them) or qualitative analyses (then it would be necessary to conduct more extensive interviews shaped by the protocols and ethics of a qualitative inquiry). The artists did not decide to develop any performative method of data collection, and when asking whether the equipment disturbed the performers, they emphasized its distinctiveness from their activities instead of looking for ways to expands its interface.

The activity closest to the RBP model was Danka Milewska's PIEGI (Eng. FRECKLES), as shown in the following extensive excerpt from her account, in which I highlighted the key phrases:

> Before I started, it was here that I talked with Łukasz that the whole situation, in the sense of these devices, cables, these machines, in some way influences what I do. (...) because I do not know when the moment will come that I will treat it as I can now treat filmmakers or a photographer who documents the action. (...) Because at the beginning it was also the case that the photographer—his presence—was so strong that I just included him in my action, but it was similar with *Looking into the distance*, (...) only then there were other... devices, they disturbed me a bit in a physical sense, but today—maybe also because I used a laptop for the first time in performance—it was as if I had stopped, as if it had disappeared, so it absolutely did not bother me (...) like it was not present for me. Like I didn't think about it. (...) There is something like this (...) that I really

> had not the feeling that I would be performing, only that I was taking part in the experiment and that somehow was part of my activity. And all these apparatus is also something... refining for me, in the sense that when I think about what I want to do and know that this apparatus is present, I am able to (...) divide the action into four parts, take one and focus on it, so it's a kind of a magnifier for me. Even though I don't seem to see through this magnifier, because I don't handle this apparatus, but I am aware that there is something else that you can see.

Danka Milewska and her team started creating what Hansen and Barton call the third space. Her performance itself thematized memory, and for her the addition of electronic recording devices became its natural extension. Development is so integral that it is invisible to the performer. Moreover, the presence of the apparatus resulted in the refinement of the performer's activities. She did not reduce them to devices that ensure the appropriate quality of the recording but rather exploited their necessary presence in an artistic way. Technical requirements and research rigour allowed her to enhance the focus on action. In other words, convention and methodology intertwined and made an imaginable possibility of creating research strategies allowing for new, substantial insight into relations between memory and performance.

The key for any activities connecting creative and research practice is the definition of knowledge and the philosophy of science behind it. In the Western context, the Popperian perspective dominates, in which knowledge is accumulated, meets the condition of falsifiability and is generalizable. In a similar period, Thomas Kuhn came up with an alternative proposal stating that science is more of recognizing when something went wrong. Paradigmatic ideas are built through their actualization in practice—performance—in various areas of human life to the point where they encounter destabilizing resistance, which is at the same time a source of new ideas (Marcum, 2005, p. 47). If we accept his concept as accurate, then this is the moment of such destabilizing aporia. The different models of PaR serve to calmly negotiate the impending transformation that may affect science and the arts. Activities such as the *Neurophysiology of the Artist in Performance* project with the intuitiveness with which their structure is created and—still rare—non-traditional usage of the tools such as brain imagining are the signs of the emergence of new research paradigms.

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