DIVERSITY IN NIME RESEARCH PRACTICES

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Abstract

This article advocates for a dialogue about research traditions and paradigms within the community around New Interfaces for Musical Expression (NIME). Although the research community collectively values interdisciplinarity, the author argues that we have not done enough to acknowledge and account for the inevitable epistemological differences that emerge with disciplinary diversity. Over time, NIME has shown a rise in the proportion of technical reporting and a concomitant decline in practice-based research, which historically played a more central role. Exploration and explication of the values, assumptions, and expectations that circumscribe legitimacy in practice-based research are needed in order to maintain and advocate for its relevance.

Participation in the NIME conference rose precipitously in its first 5-7 years and has since effectively leveled off, suggesting that its constituency is stabilizing, and the discipline should be overcoming its initial growing pains [1]. As intellectual communities mature, they inevitably develop norms and conventions that drive expectations and assumptions with regard to methodologies and research practices. As an inherently interdisciplinary community, NIME has drawn heavily from its constituent disciplines with regard to the ways in which we conduct research: the kinds of questions we ask, the methods we use, the metaphors we employ to understand the world, and the standards by which we assess legitimacy. However, these have not coalesced into a dominant paradigm for NIME research. Intellectual diversity is certainly not a bad thing, but it can become problematic when what Harrison et al. call “epistemological commitments” are neither consciously understood nor made explicit [2]. At times, the background expectations of one field are not met by research whose approach derives from another. In the worst cases, they may be in direct conflict.

This article aims to initiate a critical dialogue around what is and what ought to be considered a legitimate contribution to the NIME discourse. As our field matures, what are the traditions and modalities of research that we wish to draw upon to advance the state of knowledge and art? I address the particular place of practice-based research (PBR) in the mix and question whether increasing emphasis on scientific inquiry and technical reporting may be marginalizing PBR.

Contexts for the Emergence of NIME

A critical examination of NIME research must begin with an understanding of the practical and intellectual contexts within which NIME emerged. The practice of creating new interfaces for musical expression—if we broadly include musical instruments in the grab-bag of “interfaces”—is an ancient art, as old as music itself. Tightening the drawstrings somewhat, the notion of “interface” appears in the context of NIME to presume an electronic sound-generating system; the interface being a device that transduces changes in the environment to electrical signals, which are in turn converted to acoustic signals, either directly, or with further mediation by a digital system. Thus, NIME practice has its roots in a flurry of musical inventions around the turn of the 20th century, which intensified once the triode tube became available. The first familiar “nimes”—the Theremin and Ondes Martenot—appeared shortly thereafter.

As Jordà and others have argued, our practice can be viewed as form of lutherie [3,4], which at least in the Western tradition, emerged with the Renaissance. The original luthiers and the instrument makers who followed—Stradivari, Guarneri, Sax, Boehm, Heckel—were skilled craftsmen. It is not difficult to connect the style and spirit of their craft to those of Theremin and Martenot, or to Moog and Buchla. However, Chris Brown (referring to computer music performance in general, before the term “NIME” existed) argues that NIME practice descends also from the experimentalist tradition of Harry Partch [5]. Partch’s practice is rather distinct from lutherie in that Partch himself composed and performed with his instruments. We can therefore trace another thread of NIME practice back to Partch, through the likes of Gordon Mumma, Daphne Oram, David Rosenboom, and Michel Waisvisz. Where these proto-NIME craftspeople and artists intellectualized their practice in writing, the tendency was toward critical, theoretical, and historical underpinnings of their practice, as well as reflective accounts of their experiments intended to catalyze future creative endeavors, e.g. [6,7]. In other words, much of the inchoate writing about new interfaces for musical expression was what we might now call practice-based research [8,9].

A few seminal papers that predate NIME veer toward interdisciplinarity, drawing on concepts from other domains to explicate contemporary issues or promote alternative approaches to research and practice (e.g., [10]). It is difficult to precisely situate this class of papers within a particular research tradition, but I argue that they are fundamentally philosophical, in that they rely on logic, argumentation, and principles established by others to advance a perspective or an approach.

Proto-NIME papers from 1970s and 1980s International Computer Music Conferences are dominated by technical reports: descriptions of digital music system designs, employing engineering language and symbology. These papers generally do not explicitly tout an advance of the state of the art—this was presumably adjudicated by peer review—not do they tend to draw out universal or generalizable principles. Some include cursory accounts of limitations and directions for future development, but there is no explicit formal evaluation. Scientific writing about new interfaces for musical expression emerged almost concurrently with NIME itself, exemplified by Wanderley’s research on the analysis of performance gestures [11].

I will not exhaustively enumerate the intellectual traditions in which relevant pre-NIME writing appears, except to say that additional examples are found in the humanities, e.g., musicology and cultural studies, as well as the social sciences. My point here is to highlight that authors have long reported research on new interfaces for musical expression from diverse perspectives, practice-based ones being particularly prominent.

In spite of this diversity, what unified much early writing on new interfaces for musical expression was a common audience of music practitioners and researchers. Yet NIME emerged as a workshop within a distinct intellectual community—Human Computer Interaction—with its own paradigms that reflect different priorities and commitments. It is difficult to assess the extent to which NIME’s genesis in the ACM CHI conference has affected expectations for NIME research, but it is worth noting that CHI itself was undergoing a series of contemporary soul-searching exercises regarding the utility of scientific usability research, the role of ethnography in relation to design, and the phenomenological relevance of laboratory study to situated human activity.

It should not be surprising then that NIME struggles with its intellectual identity. Most would agree that NIME should not...
possess a dominant paradigm—its richness derives in part from its diversity—but nor should we ignore that diversity exists. What has been lacking is frank and reflective discussion of the spectrum of epistemologies that coexist in NIME and the commitments they entail, along with the opportunity to acknowledge that individuals operating in one tradition may be ill equipped to assess research rooted in another. In particular, NIME must reckon with how scientific methods can coexist with research that does not yield quantifiable outcomes.

Survey of NIME Research Styles

For the purposes of this article, I consider five genres of NIME papers. Although there is potentially some overlap, each implies a different set of background assumptions, expectations, and conceptions of legitimacy. Practice-based research (PBR) papers are those which report on specific interfaces or novel systems, and whose primary contribution is either manifest in the design itself or a theoretical position that the design articulates. PBR papers frequently include some amount of technical reporting, but differ from what I consider a pure technical report. Technical reports either: 1) describe a technique or technology in the abstract and not the experiences gained through a particular instantiation of it, or 2) describe the technical implementation of a design without any theoretical framework or experiential reporting. Purely theoretical/philosophical papers provide theoretical or philosophical positions not rooted in or articulated by a specific interface design or technology. Scientific papers report on the outcomes of experiments or laboratory research with quantifiable results. Qualitative research papers report on ethnographic or experimental research studies with descriptive results. Of the 14 papers presented at the first NIME workshop in 2001, the majority (8) described PBR, with just 2 technical reports. The remaining 4 were theoretical/philosophical. One of these advocated scientific methods but did not report scientific results itself. By NIME 2006, the balance had shifted. There were 40 short and long papers, of which 18 were practice-based, 15 were technical reports, and 7 were theoretical/philosophical. Although a handful of papers included some kind of evaluation or user study, none had a primary focus on scientific or qualitative research. At NIME 2012, the papers had skewed heavily toward technical and scientific reporting. Of 31 long and short papers, 16 were technical reports, 7 were practice-based, 5 were scientific, 2 were qualitative research and just 1 was theoretical/philosophical.

Although this survey is itself unscientific, it bears out what many will know anecdotally: There is an increasing expectation for demonstrable technological advances or quantifiable outcomes in NIME research. Notably, NIME 2014 marked the explicit introduction of “science” into the discourse—the NIME paper track was billed as the “scientific programme,” and a review criterion for all paper submissions, regardless of their research approach, was “scientific contribution.” Although problematic, this tendency is understandable: Quantifiable outcomes are less likely to be controversial, and science is a language that most are likely to understand, even if we aren’t fundamentally scientists. It is easier to arrive at a consensus in assessing scientific or technological contributions than experimental or theoretical ones.

Implications

As Harrison et al. advocated for CHI, multiple paradigms can and should coexist, but to do so harmoniously and productively requires explicating their epistemologies, their priorities, and the kinds of questions and methods they expect: “One cost of work” outside the dominant paradigm “is precisely the need to explicate what is legitimate” [12]. Without such an explicit reckoning, PBR may be increasingly and unnecessarily seen as being in conflict with scientific and technical research. If practice-based research is to remain legitimate, it behooves us to circumscribe what legitimates practice-based research.

This is at least a two-stage endeavor. The first is for those of us engaged in PBR to collectively examine its goals, expectations, and parameters with the aim of clarifying what could constitute legitimacy within the PBR community. I would challenge the NIME PBR community to collectively establish such a value statement, which would hopefully encourage other research traditions in NIME to do the same. The nature of PBR is such that methodological innovations are frequently necessary; thus, simply enumerating acceptable methods is not a viable course of action. Yet it seems plausible that we could arrive at a framework for understanding and assessing PBR. Having achieved this, the second task would be to situate PBR within the larger NIME community: to clarify and advocate for its legitimacy with specific reference to other approaches.

A larger objective would be to encourage all authors to explicitly situate their writing with respect to NIME’s constituent disciplines or paradigms, thereby making their epistemological commitments and methodological assumptions explicit. Such a development will hopefully engender a more equitable and productive intellectual community with a robust discourse founded on greater transdisciplinary understanding.

Ultimately, the community must decide whether and how diverse research practices can coexist in NIME. A first step will be a more detailed and nuanced exploration and explication of the natures of these practices, what constitutes legitimacy among them, and how they interface with each other. As PBR does not possess such a readily identifiable or universal set of principles and methods as science does, those of us who engage in this enterprise face an arguably more difficult task.

References and Notes

*Based on a presentation given at the Practice-Based Research workshop at the 14th International Conference on New Interfaces for Musical Expression (NIME), 30 June–4 July 2014, Goldsmiths, University of London.

1. Throughout this article the “NIME” acronym refers specifically to the Conference on New Interfaces for Musical Expression. Although the conference is not the sole focus of the paper, as the primary channel for the community’s written output, I use it as a barometer for the styles, conventions, and norms that are becoming established. Where I refer to research on the subject in general, or which predates the conference, I use the lowercase form.


