

The Building of Boutique Effects Pedals—The “Where” of Improvisation

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Improvisation and performance are intimately intertwined, in practice as well as in the critical literature [1]. In order to more fruitfully explore this relationship, however, I suggest expanding the rubric of improvisation in order to encompass the creation and use of music technology. Improvisation—broadly understood here as creative and exploratory play with structures and concepts—emerges at the nexus of social and musical practices constituting the creation of music technology, and I think it crucial to start to delineate the continuum of improvisation running through musical culture as a whole.

In this essay I present preliminary thoughts on relationships between improvisation and music technology, thoughts that stem from a research project I have had underway for 2 years. In 2007, I began working with a small group of music-effects pedal builders based in the United States on an ethnographic investigation into what I am calling the culture of boutique pedals. Through interviews, visits to workshops and participant-observation in the on-line communities constituting the main social gathering spots for builders and users alike, I have begun to generate a framework for analyzing the cultural, social, aesthetic and economic structures delineating this relatively small yet vibrant niche of music technology. The community of builders and users is far from homogeneous, with a wide range of genre tastes, musical experience, political views and technical backgrounds contributing to the diversity of identities and practices informing the building, selling, trading and discussing of boutique pedals.

From the beginning of my research project, I have spoken with builders about the processes through which they invent, design and construct pedals—with “pedals” comprising the electronic circuitry on the inside and the graphics/design work visible on the outside (Fig. 1). Here I focus on the former, although I consider the latter to be of equal importance to my overall analysis. There are two broad groupings that builders fall into with regard to technical approach to circuitry: those who have electrical engineering backgrounds (however informal) and those who work from a more intuitive and experimental position (thereby generating a “background” or education in engineering). The builders with experience and technical knowledge tend to map out circuits on paper or use quantifiable data (capacitor values, etc.), whereas those who work more intuitively tend to produce circuits through experi-

mentation. This experimentation is not without boundaries, however, as over the course of their DIY educations in pedal building these individuals come to understand the limitations and potentials associated with various electronic components and combinations. That is, they often manipulate materials or structures at hand in ways that have unknown outcomes somehow bounded by expected limitations. In a sense, I argue, they improvise.

With regard to investigation into the role of improvisation in music, emphasis has often fallen on the realm of performance—the “onstage” presentation or creation of music for an audience in a “live” setting. I use qualifying quotation marks here as I understand that delimitations of “music,” “performance” and “improvisation” are fluid and contested in both literature and practice. As hard as it is to succinctly and agreeably define these terms, however, we use them as shorthand on a regular basis, and the assertion that improvisation usually maps directly to performance stands as my starting point. Rather than argue against it as a starting point, though, I suggest that it is fruitful to think around it. Extending the rubric of improvisation into a non-performance zone serves to focus our understandings on the ways that emergent creative practice figures into the development and construction of music technology. The technology I examine may ultimately be used in improvisatory musical performance, but I want to explore mechanisms of improvisation as they figure into the inspiration, design, assembling, decoration and even distribution of handmade, small-batch stomp boxes. In moving toward this goal, I will address critical approaches to the relationships between music and improvisation while interleaving ways in which I see improvisation informing the creation of music technology that ultimately affords performance-based improv and experimentation with sound.

DYNAMICS AND IMPROVISATIONAL PRACTICE

Two ideas I have encountered in reading analysis on music and improvisation—that (1) there is no unified theory of improvisation [2] but that (2) there is a reason to have a “philosophy of improvisation” [3]—frame the critical space in which I interpret pedal-building-as-improvisation. Derek Bailey’s observation that there is no “widely held” theory of improvisation illuminates the slippery task of explaining what

ABSTRACT

Based on 2 years of ethnographic fieldwork with builders of boutique music effects boxes, this essay explores the ways in which improvisation figures into the creation of music technology. The author argues that expanding the rubric of improvisation to encompass the processes of designing and building effects boxes pushes scholars to understand relationships between music and improvisation as existing beyond the boundaries of performance. Ultimately he posits that improvisatory behavior and exploratory engagement with material at hand is central to building pedals, and should be assessed as part of the continuum of social-aesthetic practices composing music making.

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Fig. 1. An image of the author's pedal board taken in the spring of 2008. While not all the pedals pictured are "boutique"—meaning hand-built in small batches—most are. Builders represented in the photo include Devi Ever, Catalinbread, Subdecay Studios, Barge Concepts and Zvex. (Photo © John Fenn)

it is and/or how it works, as he also notes [4]. Stating that improvisation is at once "the most widely practised of all musical activities and the least acknowledged and understood," Bailey wonders throughout his text if maybe improvisation is just something about which knowledge can be gained only through experience. Gary Peters riffs on Bailey's efforts in pursuing what he calls the philosophy of improvisation. Noting that Bailey is accurate about the lack of a grand theory of improvisation, Peters argues over the course of his book that we can, however, extract a philosophy of improvisation by focusing on experiential processes of "the work" in art or creative practice. Echoing performance theory from almost 25 years prior, Peters opens his book with the statement "Improvisation has always already happened" [5]. Throughout the book, Peters contextualizes and adds nuance to this expansive statement by uncovering the ways in which improvisational processes of artistic practice comprise false starts, errors, rehashings and recombinations prior to the "fixed" state of the work—that end product often held up as the art object.

Many of the examples Peters examines are musical in nature, although it is more accurate to say that his book takes on improvisation as it relates to creative endeavors as a whole rather than those specifically dealing with organized sound. Key to my inquiry is Peters's emphasis on the dynamic of fixing and unfixing that he situates at the center of improvi-

sation—a dynamic paralleled in Bailey's efforts as a performer and scholar. Peters's discussion of the constant motion that improvisational activities entail in all things creative has led me to approach the practice of pedal building in relation to the practice of making music. Improvisation figures in both domains, drawing on similar oscillations between fixed/unfixed or known/unknown but toward different articulations of "fixity": a pedal, on the one hand, and a piece or performance, on the other.

Bailey takes on a practitioner's view of improvisation, and Peters the philosopher's, but research and analysis have come from other domains as well. Briefly introducing a sampling of perspectives further circumscribes the space within which I connect pedal building and improvisation. In a paper titled "Improvisation: Methods and Models," Jeff Pressing articulates a cognitive formulation that attempts to theorize the question "How do people improvise?" Reviewing a range of psychological, physiological, neuroscientific and musicological research into improvisation, he presents a theorization of improvisation that accounts for mechanisms of the brain and body that anchor the ability to create in the moment. In the end, however, his focus is exclusively on musical performance, although I find much of what he writes relevant to a discussion of pedal building. Of interest, for example, is his attention to the mechanism of "feedback and error correction" [6] as well as the concepts of "intuition"

and "creativity" [7]. Pressing notes that "feedback is a vital component in improvisation for it enables error correction and adaptation—a narrowing of the gap between intended and actual motor and musical effects" [8]. Although "feedback" is intended by Pressing to refer to the psychological process, and "musical effects" refers to the sonic results of decisions by performers, the terms resonate with the topic of my essay. "Musical effects" is an obvious homonym, but "feedback" is a bit more nuanced. Feedback loops are features of pedals made by several of the builders I have interviewed: A footswitch engages a loop that takes a portion of the pedal's output and runs it back through the circuit and any other pedals plugged into the loop, usually resulting in sonic chaos. Feedback is also an important social aspect of the boutique pedal business, with users providing reviews, feature requests and general suggestions to builders via e-mail, social networking sites or discussion boards. Feedback, then, is simultaneously part of the product and of the process for boutique pedals and improvisation.

A restating of my own question here: How does improvisation figure into the technological aspects of music-making—in this case the building of effects boxes? Wanting to avoid tautology, teleology or causal propositions, I argue that envisioning a continuum of improvisation and music allows us to examine the relationships between building and using music technology. This continuum accounts for the materiality of improvisational actions as these lead to or inform the sonic and conceptual moments of performance. "Improvisational actions" in the continuum are movements of innovation or intuition—small or large—that individuals make while creating. These movements exist in a "free" relationship to acknowledged frameworks such as genres, techniques or rules—such frameworks serve more as starting points in this relationship than as limitations. In the case of a pedal builder working on a "new" circuit, she or he may very well understand that there are limits to combinations of components (e.g. a non-functional circuit or something too expensive to build and sell) but that within those limits—and in relation to traditional or known circuits—many unknown possibilities remain. It is in the pursuit of these unknowns where I find improvisation in pedal-building.

A 2006 article by Will Gibson titled "Material Culture and Embodied Action: Sociological Notes on the Examination of Musical Instruments in Jazz Improvisation" serves as a model for inquiry into

the material aspects of musical practice, specifically in terms of improvisation. Gibson's article lays important groundwork for understanding ways in which technology relates to musical or social practice, or what he calls "embodied action." His basic premise is that "the examination of technologies and their social contexts, which form the basis of the material culture perspective, can be strengthened through an increased awareness of the intersubjective and embodied features of social action" [9], and his focus on the robust interaction of instruments, musicians and sound in jazz improvisation is an important critical building block for the continuum I propose—in large part because his analysis decenters performance in relation to improvisation by establishing the importance of material culture/technology (without over-privileging it). His analysis remains primarily concerned with performance of music in the end, but he encourages research that moves beyond

improvised musical performance and looks at embodied action with regard to "production scenarios" [10].

Technology has a high profile in Gibson's brief overview of the kinds of "scenarios" he thinks would benefit from a material culture analysis, and I contend that attending to the improvisatory aspects of creating technology would enrich the approach suggested by Gibson. His insightful and rigorous analysis of improvisational practice in jazz as manifest through interaction with (and discourse about) instruments is a significant change from standard analysis of the role of technology in musical practice, although he does rely somewhat on the implicit argument that technology affords musical creativity and improvisation. Whereas other recent reflections on the intersection of improvisation and musical hardware or software affirm the directional suggestion that the technology serves as tool for creativity-in-improvisation, I want to open that equation up and look at how

improvisation feeds into the creation of musical technology (which may very well then feed into improvisational performance). For example, Pauline Oliveros, writing in the first issue of *Critical Studies in Improvisation*, observes:

I have been tripping on wires on stage and off stage for half a century of this now rapidly accelerating technological change in music instrumentation. . . . I have lived for sixty-eight percent of the twentieth century and four percent of the twenty-first century. At this juncture I have the perspective of seventy-two years experience with technological change—particularly with music technology. I have attempted over the years to enhance my musical understanding, abilities, and performance as a human by using the musical tools that are available to me as an extension of my body. As I continue to adopt new technologies as tools, I am participating in transhuman activity. Will I live to enter the posthuman age? [11]

With her essay, Oliveros situates the place of technology in improvisation from an obviously engaged position.

Fig. 2. Two pedals designed and built by Lawrence Scaduto of OhNoHo. At left: the Utter Stutter (with "conehead" stencil graphic); at right: the ChkChkBoom ("step mom's tattoo" graphic). Scaduto builds small batches of ten or so, changing the visual scheme with each; these boxes are each from batches produced in early 2010. They are both feedback loopers: They take output signal from other pedals in their loop and feed it back through the circuit, generating unpredictable sonic results. (Photo © John Fenn)



She nonetheless references (and even privileges) performance of music rather than creation of technology as the primary element, reinforcing the notion that material culture precedes improvisation/performance. A different take on relationships between music technology and creativity in music composition and performance (certainly connected to improvisation) can be found in a recent article in *Leonardo*, “Emerging Materiality: Reflections on Creative Use of Software in Electronic Music Composition” [12]. The authors examine how the materiality of software informs creative decisions and engagement in composition, thereby moving discourse away from the directional equation I noted above that postulates technology predicates creativity (improvisation). In focusing on the ways in which affordances of the technology’s aesthetics interact with use of the technology, the authors imbricate questions I have raised about processes of design or creation of the technology itself. Such inquiry affirms the premise that not only might technology be used creatively and

improvisatorially, but that improvisation—as creative play with structures and concepts—might very well be embedded in the processes through which technology is created.

IMPROVISING PEDALS AND BUILDING CIRCUITS

For the sake of simplicity, pedal building can be divided into two discrete aspects: circuit design and enclosure design. In many cases, these two aspects are intimately related, and with most of the builders I have interviewed (as well as many that I have not) the intersection of circuit and graphics represents a rich area of interpretation as well as of improvisation. Working in the semiotic space between sound and visuals, builders generate circuits that are manifested in sonic characteristics representing their play with electronic components and then put the circuits in enclosures (usually metal) that represent their play with visual materials. The small scale of boutique pedal building provides room for change and

revision in graphics; some builders alter graphics with every batch of pedals, some hand-paint each pedal and some follow longer arcs of visual distinction. All this play—dynamic and intuitive exploration of materials—maps onto the concepts of improvisation as articulated in analysis of musical performance.

My thinking about pedal building—more specifically here, the requisite circuit creation—as involving improvisation emerges from conversations with builders. The builders I have spoken with most directly about their processes in designing and assembling circuits concurred—using a range of language—that they often proceed by “making things up” as they go. This language echoes discourse used by musicians in many traditions [13], and should be heard as an encounter with tacit knowledge [14] rather than a semantic shoulder shrug indicating inability to express process in words. While no builders used the word “improvise” explicitly at first, in each case, as discussion about process proceeded, they formed analyses and posited reflections fore-

Fig. 3. The back plates of the pedals in Fig. 2, illustrating some of the visual improvisation that boutique builders use to “brand” and authenticate their creations. (Photo © John Fenn)



grounding the dialectic between tightly framed progress (control) and pursuit of the unknown (intuition). Manifesting in entirely new circuit designs, alterations of their existing circuits that worked “better” or frequently changing graphics that reflected their personal aesthetics or states of mind, this dialectic aligns with those practices usually discussed as “improvisation” in musical performance.

Builders of boutique music-effects pedals often employ a creative process with circuitry that should be seen as a nexus of improvisation with materials and concepts. Their exploratory play combines technical knowledge and creative manipulation toward the goal of producing sonic tools, tools that they themselves use (all are musicians of one sort or another) and will be used by others in the creation of music or sound art. A key aspect of this process, however, is that it is a form of improvisation that prefigures—but does not determine—the kind of improvisation traditionally tied to performance of music. As such, this technology-driven improvisation serves as a background for more easily recognized musical improvisation—a background, however, that is rich with analytic potential for understanding a continuum of iterative creativity.

Grappling with materials (capacitors, transistors, wire, knobs, switches) and concepts (circuit design, sonic aesthetics, visual graphics) is an ongoing cycle of improvisation for small-batch pedal builders as they develop and produce pedals. This cycle involves intuitive and exploratory play with components in developing new pedals and revamping older circuits in a particular builder’s product line. Moving between known components/sonic results and the unknown (yet imaginable) results of putting a different component in a circuit is an oscillation between improvisation with materials and improvisation with concepts. The concepts a builder juggles are aesthetic on the one hand (the goal of hitting a particular sound) and practical on the other (the expected results of pairing certain components with others). Experience with building circuits feeds back into experience of listening to and/or making music, such that builders draw on practices and ideas they are familiar with in order to push into less familiar territory that nonetheless resonates with expectations. Across multiple interviews, builders Devi Ever (Devi Ever FX), Tom Dalton (Fuzzhugger FX), Lawrence Scaduto (OhNoHo) (Figs 2 and 3) and Eric Edvalson (Mel-lowlone) indicated that creating new cir-

cuits or pedal designs comprises dynamic feedback between accumulated technical knowledge, a sense of what sound they’d like to achieve and a desire to push beyond the norm. Devi Ever, for example, is well known for building a diverse range of fuzz pedals, many of which stem from a set of straightforward circuits she has mastered over time yet tweaks in experimental ways with each iteration or version. That is, the fuzz pedals she builds today have direct relationships to those she built in 2005 in terms of aesthetic and technical expectations on the part of fans/users and herself yet are also departures (some significant, some subtle) from those predecessors. Each pedal she builds maintains an organic connection to the corpus of aesthetic-technical creations she has made previously (e.g. as a single manifestation/unit of a model, such as the Torn’s Peaker, that is also part of a line of fuzz pedals), yet can also represent a deviation or experimental manipulation of elements from that corpus (e.g. the Torn’s Peaker circuit turns into the Never Drive with a few components swapped). This dynamic between continuity and deviation constitutes a practice of improvisation that oscillates between the established and the exploratory.

MOVING ON

The establishment in 2004 of the open-access journal *Critical Studies in Improvisation* [15] set a challenge to scholars and practitioners alike: to understand improvisation as more than musical practice or performance by examining the range of social, cultural, ethical and political issues that surround improvisatory practice [16]. I seek to meet this challenge to rigorously examine improvisation by stretching the commonly articulated boundaries of improv-as-performance. Investigating technology created improvisatorially—as Gibson’s article suggests doing—shifts the focus from improv as aesthetically bound (i.e. rooted in artistic or creative performance) to improv as socially bound (i.e. connected to interactions and practice). Some of the core axioms of musical improvisation as manifest in critical analysis focused on performance—collaboration, embodied knowledge, emergence, feedback—infuse the processes of creativity constituting boutique pedal production. And an expanded study of relationships between improvisation and music that moves beyond the performance context and analyzes broader forces, settings and issues helps frame the social practice element in which I am ultimately interested. The

recent volume *Noise & Capitalism* [17] opens up a critical space for contemplating relations between technology, improvised music/sound art and social practice—especially those existing in alterity to hegemonic norms. Whether or not boutique pedals are used for creating noise in performance, I argue that the improvisatory and exploratory trajectories involved in their creation afford experimentation and non-standard practices in their use by individuals. Such improvisatory affordance is not predictive or causal, but more a potential that is somehow wrapped up with the freely creative nexus of materials and intuitive play out of which they emerge. The creative spark embedded in circuit design (from inspired matching of components to “undoing” a mistake), physical design (box layout and graphics) and distribution design (selling of product) can (and should) be thought of as improvisatory. That is, this process of technology production draws on established practices and collective knowledge in order to set expectations (or limits) while also pursuing new (or original)—maybe even singular and unique—sonic/visual aesthetics. As such, the building of pedals parallels the philosophical goals of improvisation in performance. Is it a continuum, or a cycle—technology → performance → tech innovation?

Emerging across my discussions with builders and thinking on this topic after reading some of the literature is the idea that improvisation informs the creation of music technology that ultimately enables performance across a range of genres and styles. Wary of putting forth a causal model, I position improvisation in the creation of boutique guitar effects pedals as a node in a larger stream of creative processes that coalesce in what Christopher Small calls “musicking” [18]—those wide-ranging activities people engage in around music, from listening to making, discussing to buying. That is, musical practice is social practice involving musical culture, and improvisation manifests across the multiple ways that people interact with sound.

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