



MODERN MUSICOLOGY AND THE COLLEGE CLASSROOM

TEACHING ELECTRONIC MUSIC

CULTURAL, CREATIVE, AND ANALYTICAL PERSPECTIVES

Edited by BLAKE STEVENS

ROUTLEDGE



7 It's Not (Just) About History and, by the Way, Which History?

Leigh Landy

Higher education institutions have the funny habit of teaching music history, theory, and performance in isolation. Some offer history programs over the length of an undergraduate program and only arrive at current trends in an advanced year, meaning that students interested in today's music start studying composition well before they learn the relevant history. Furthermore, in Europe until the so-called Bologna agreement, universities tended to focus on theory and conservatories on practice. Although Anglophone teaching does combine both, the silo mentality of separating musical subjects in terms of curriculum lives on.

This chapter offers the view that the teaching of electroacoustic (or sound-based) music, which possesses its own paradigm, should ideally be presented holistically by introducing relevant aspects of theory and practice with regard to any given subject simultaneously. It further supports the view that creating electroacoustic music without a broad knowledge of its various disciplines, its technologies, techniques, and histories indicates a pedagogical flaw, as does the notion of undertaking analytical and other musicological studies of electroacoustic composition without hands-on experience of sonic creativity. This chapter suggests that collaborative musicking, as it is relevant to both sampling and do-it-yourself electronics (hacking) cultures, should be integrated into any twenty-first-century electroacoustic curriculum, as should socio-cultural awareness regarding the place of sonic creativity in today's and tomorrow's world. Finally, the scope of making music with sounds is very broad these days. Histories tend to be selective. Holism is a means of avoiding that.

The following discussion is not a scholarly survey; instead, it is intended to present this educational vision based on the author's experience as a composer, scholar, and pedagogue, offering a vision of curriculum design for electroacoustic music studies at the tertiary education level and thus including the subject's musicological components. Its premise is that the more holistically presented a given curriculum, molded to local circumstances, the better informed and more adaptable (e.g., to employment, future opportunities) the students involved will be. To this end, the

notions of the “thinking musician” and “practicing musicologist” will be introduced.

Getting Started: Does a Curriculum for Electroacoustic Music Exist?

Let's commence by inspecting what might be called three generic examples of higher education curricula, all of which this author has encountered:

- The first example considers a music major curriculum with a music history strand that takes over two years before students are introduced to twentieth- and twenty-first-century art music. In such cases, how do those wanting to focus on new music performance and/or composition find a way to engage knowledgably with their specialty well before this introduction is offered?
- The second example represents one of the many variants of electroacoustic music modules being presented within the auspices of a music technology program. In this case, the term “theory” may have more to do with learning to use MAX/MSP or SuperCollider than with what most music departments consider to be theory. Such courses will also normally include a survey of electroacoustic music history, but who and which types of music will be presented and which omitted, and how much aesthetic and analytical knowledge will be included in this curriculum?¹
- The third example concerns introducing electroacoustic music as an optional subject for someone majoring in music. Inevitably, the amount of electroacoustic music modules offered will be limited, as is most likely the case in the first example within a general music course, meaning the inevitable reduction of subjects covered. Does this lead to catastrophe or are there intelligent ways of covering a wide variety of aspects of electroacoustic music within limited time?

The abovementioned examples have been consciously presented rhetorically to enable the author to present an alternative basis for any of the three. To cut to the quick, recycling one of the author's titles, one needs to know whether a given electroacoustic music curriculum is focused on music Technology, Music technology, or Music Technology, and, regardless of the focus, how to ensure that those aspects seen to be of lesser importance can be integrated into any given curriculum.²

Putting this another way, it is proposed that what might be called the “silo approach” to an electroacoustic music curriculum, separating history from music theory, various forms of technology, performance, production, and composition, and so on, is not an ideal way of presenting a subject that is, by definition, an interdiscipline (with a wink of an eye to Pierre Schaeffer).³ Instead, finding means to present knowledge

holistically, ideally in the form of intensive projects (which are not always feasible given various institutions' timetable constraints), offers an alternative to engage both sides of the brain as it were simultaneously, where creative endeavor can be triangulated by way of scholarly and technological knowledge and vice versa.⁴ In short, the arts (creative endeavor)/humanities (musicology)/technology (science) triangle need not be seen as three phases of study but instead as three aspects of knowledge that are best presented holistically with regard to the subject of the day. With this in mind, it is suggested that any curriculum should produce both "thinking musicians" and "practicing musicologists" as an ideal. These two notions, which we shall return to later in the chapter, stand in dire contrast to traditional European teaching, where universities primarily develop scholars and academies musicians. It is suggested that in the twenty-first century, this distinction should be reconsidered. Furthermore, although somewhat outside the scope of this chapter, similar curricula should be considered for pre-tertiary education, as exemplified subsequently.⁵

Prior to continuing on to the core of this chapter, a remark linked to both unorthodox and progressive pedagogical thinking deserves mention. A large percentage of electroacoustic music courses are embedded within traditional music departments or institutions. Of these internationally, many are either requesting that students complete traditional music modules such as keyboard harmony and counterpoint alongside the specialist program, or they are assessing traditional musical knowledge through their entrance examinations, or both. The question arises as to what extent such knowledge and skills are relevant to the student of electroacoustic music or even necessary. In the United Kingdom and a few other countries, some institutions offer admission to candidates demonstrating both knowledge of and experience in electroacoustic music who may not even possess musical literacy. As someone involved in this field on a daily basis, this author has found that for many students, it is a rarity that the five-line staff is needed, and although musical knowledge such as that gained from traditional theory courses is never wasted, there are so many other things that could be offered to the student of sonic creativity. In short, traditional entrance requirements deserve to be *mises en question* in any state-of-the-art course that sees electroacoustic music as a more sound- than note-based idiom.

On Electroacoustic Music Studies and Education⁶

In this central section of the chapter, the author retraces the steps that led him to some of his writings, projects, and pedagogical decisions; after this, we arrive at a section in which the holistic approach introduced earlier is exemplified in greater detail. It includes some suggestions that readers may find slightly unexpected, such as teaching students involved in sonic creativity to work collaboratively.

How the Author's Writings/Scholarship Fit in

During much of the author's career, his research has focused on the combination of issues related to better understanding the area called electroacoustic music studies alongside the desire to make this corpus of music accessible to a public larger than its active community. If there is one publication that covers this entire scope, it is *Understanding the Art of Sound Organization*, in which an attempt was made to categorize the key areas of the field, reflecting previous work on the ElectroAcoustic Resource Site (EARS, www.ears.dmu.ac.uk) and bringing together all major theoretical approaches that had been presented by that time within the Musicology of Electroacoustic Music (MEM) index category on the EARS site.⁷

Beyond these objectives, the 2007 publication focused on the urgency for all involved in the field of scholarship and electroacoustic music practice to take access into account, thus making the subject more relevant to nonspecialists while seeking means to develop new communities of interest and of practice. The volume discussed access-focused research and presented access tools. Issues related to terminology, the original focus of the EARS site in the mid-2000s, were presented—for example, that what Europeans and most of the world calls “electroacoustic music,” the United States largely continues to call “electronic music,” which has the significance elsewhere of being a subset of electroacoustic music, namely, music based on generated sonic materials. There exists a host of dynamic, still unresolved terminological issues that are worthy of inclusion in today's electroacoustic music studies courses.

This terminological discussion in the book led the author to avoid utilizing any of the various terms for electroacoustic music, as none was unambiguous in covering the full area; instead he chose to propose a new term: sound-based music.⁸ This decision led the author to create the notion of the *sound-based music paradigm* in the same volume, suggesting that there exists a body of knowledge related to sound-based music, as there is one for note-based varieties, that covers knowledge related to practice, theory, and reception. It is the discovery of this paradigm that helped lead to the proposed approach to teaching electroacoustic music studies holistically. Before discussing the approach in some detail, one subarea of the field deserves special attention.

A Brief Word on the Importance of Socio-Cultural Awareness and Its Relevance to Electroacoustic Music Studies

In the 1990s, prior to commencing the EARS project, it appeared that there were some subareas within the field of electroacoustic music studies that were underrepresented. At the top of the list would be what one might call the ethnomusicology of electroacoustic music, in the sense of the study of the music as a cultural phenomenon. Some twenty years

later, this remains, relatively speaking, a "hole in the market." This seems odd, as there are forms of this body of music that relate to disparate communities.

Take the examples of acousmatic composition and noise. Although both practices exist within the sound-based music paradigm, their performance venues are largely different; their communities of interest are largely different; their means of presentation and reception are different, and, frankly, it is the latter that has caused more resonance (no pun intended) than the one more frequently discussed in higher education that evolved from *musique concrète*. Although both are an acquired taste in a sense, history has made one more of a people's (or folk) music, while the other has remained one more associated with elite culture. However, based on the data gathered in the intention/reception project, this elitist position does not need to remain the case.

Neither practice neatly fits within the category of art music or commercial (or popular) music. As discussed in the subsequent section regarding collaboration, both are in fact open to anyone. As noise is not everyone's cup of tea, one might suggest that music based on recording any sound could theoretically become more ubiquitous than noise performance. Why do specialists not investigate such subjects, and consequently, why do educators normally not engage with societal impact when teaching this music? For example, for those involved in teaching electroacoustic music production, why not ask students to consider for whom their pieces are being made as opposed to perpetuating the more arrogant (and vague) notion of "for anyone"?

This is but one of many examples that could be cited investigating this music as a cultural phenomenon. Knowing from the intention/reception project that the majority of participants in case studies, now spanning over one and a half decades, would like to know more about and hear more electroacoustic music after they have been introduced to it, it is the role of both musicians and educators (often the same people) to ensure that these types of introductions are facilitated. Educating students to be aware of relevant cultural opportunities and challenges such as making their music accessible should be embedded into any curriculum.

This Chapter's Proposal

The three scenarios proposed as "generic" in this chapter's introduction all suggest that local circumstances and traditions, alongside the people involved with teaching modules, determine the type of curriculum, time offered, means of teaching, facilities, and so much more. As someone who also studied mathematics, the author often thinks in terms of "optimizing within given constraints," and that is what is being suggested here. For example, demanding that a very traditional conservatory drop its entrance examination for electroacoustic music candidates may be a step

too far. Still, constantly accepting something that is superannuated, in particular for this field, is not right either.

We are living in a time in which most students are so-called digital natives. Many used software like GarageBand or similar when they were young. Although one can have many qualms with such packages (where you cannot really make a mistake), the ability for people to organize sounds, first intuitively, then with skills obtained on the way, can be astonishing.

Similarly, these students' knowledge regarding today's sampling and do-it-yourself cultures may be greater than their knowledge of renaissance or baroque music. Frankly, the former is of greater relevance to electroacoustic music than the latter, although knowledge of both is even better. Still, one has limited time to teach in this field. It all depends on those circumstances.

Let's return to that art/humanities/technology triangle and contemplate the silos or distinct subject areas within them. Regardless of the thrust of a given course, it would be unfair to the student to skip any of the three within this interdisciplinary. Yet no undergraduate course can ever do justice to all areas. Why not combine modules that "span the space" of a given area—musicology, for example—and then treat subareas of each simultaneously, allowing concepts to be put into practice, practice to be backed up by knowledge, and relevant context supported by appropriate scientific and technological knowledge and tools?⁹

The next step is to apply the above within potential curricula focusing on electroacoustic music or offering the subject as a supplementary study. To achieve this, the goal of creating thinking musicians and practicing musicologists is a fundamental point of departure. Therefore, we shall first tease out this notion a bit and then exemplify it for diverse educational circumstances.

In today's world, no one would dispute that the composer, performer, and musicologist each represents a specific vocation. Thus, one might conclude that training should lead to one of these. What is being proposed here, in particular in the case of this young and very dynamic art form, is that training these specialties in isolation is erroneous.

Prior to investigating specific examples, let's pursue this point. People involved in the production of electroacoustic music may call themselves composers; however, most of them also present, and thus perform, their work, write about their compositions, and are highly involved in the dissemination of their work. The *métier* of composer is thus dependent on an understanding of—if not direct involvement in—the areas of performance/presentation, contextualization of a work, and the organization of dissemination.

Given the somewhat marginal position of much electroacoustic music in today's society, it is logical that the musician is aware of and takes into account the listener's point of view, not as an abstract notion, but more

specifically as one based on the diversity of potential listeners. For new listeners, this author has suggested that musicians offer them “something to hold on to” in order to provide them with navigation tools to avoid confusion and lack of connection with their work.¹⁰ This is related, therefore, to the “for whom” aspect of musical production.

In order to achieve the goals sketched earlier, anyone involved in sonic creativity must have sufficient musical, technical, and musicological knowledge to be aware of where their work sits with respect to today’s extremely diverse musical as well as new media landscapes. The musician should be aware of where innovation is taking place, assuming that this is relevant, and how a given work links with previous works. Similarly, the musician should be aware of both the conceptual and more formal means of production, as should any trained musician; this goes hand in hand with knowledge related to the listening experience. In other words, aspects traditionally related to reception and analysis are equally pertinent for the musician with respect to production. Taking all of this into account, the notion of the thinking musician seems self-evident.

For those who are more interested in the scholarly study of this music—and, to be honest, the vast majority of these currently are also practicing musicians—experience in musical production is not only useful but also fundamental to understanding the music under investigation. To achieve this, one need not reach the same level of expertise as the electroacoustic musician, but one must nonetheless have some experience regarding the ins and outs of the relevant means of production.

To this end, there have been initiatives to support engagement with the production process beyond introductory modules in most curricula. To choose one outstanding example, Michael Clarke and his colleagues have developed tools for interactive analysis over many years.¹¹ They have created a number of analyses where the user engages with compositional situations and decisions similar to the composer of a given work. In this way, several aspects of a given composition are presented to a user, who not only can learn the conceptual knowledge related to the work but also can listen to sound examples concerning whatever is being discussed and then explore the sonic materials and their means of generation and/or manipulation in a user-friendly environment in circumstances not dissimilar from those of the original creator of a work. The goal is not to remix but instead to participate in a simulation of the creative experience while learning about both production and analytical techniques.

Remaining with the subject of analysis for a moment, Simon Emmer-son and the author made a number of strategic decisions when editing a recent book on electroacoustic music analysis.¹² We not only suggested a template to those submitting to the book, offering a framework for discussion, but also presented a four-part question to situate their analyses: For which users? For which works/genres? With what intentions? With which tools and approaches? Although this publication does not involve

active practice as does the interactive analysis initiative, the editors consciously opted for a very eclectic selection of works to be investigated, demonstrating the breadth of electroacoustic music from soundscape to sound art to acousmatic to IDM to aural computer games and to mixed performance, as well as demonstrating both universal issues and issues related to specific genres and categories. In the author's contribution discussing a text-sound work, the analysis was created for school teachers to introduce to young children, illustrating how analysis combined with visual representation presented with a work can aid the introduction to and understanding of this type of music among new audiences. The choice of content in this book supports the arguments suggesting introducing the full breadth of sonic creativity as well as addressing different user groups (as reflected in diverse curricula).

Both of the previous examples, as should a creative work, involve a project dramaturgy; let's call it the "why" of the initiative. In the case of the book, the "for which users" part of the four-part question supports the opportunity to take the notion of for whom an analysis is primarily intended into account. The question "for which work/genre" offers the editors the opportunity to cover an extremely diverse repertoire of works. In the case of the interactive analysis tools, the in-built didactic element, which holistically combines theory with practice, strongly supports this chapter's premise.

Hopefully, the scene is set to tie a number of remarks together in terms of creating an up-to-date module or curriculum for electroacoustic music studies for a given group at a given level of experience, based on the available facilities over a particular period of time and covering a given number of hours per week. The previous sentence is rather long, as it suggests that a module is not a module (in the sense of being standardized or fixed) due to the diverse local circumstances that exist where electroacoustic music is taught.

A Specific Example Applied to Diverse Curricula

Let's take a subject, namely, the gesture as a compositional tool, and apply it using the proposed holistic approach in a number of circumstances: a general music curriculum, a specialist curriculum, a one-off elective module, and lessons and workshops for pre-higher education students or people in the community interested in extending their education. The gesture might be seen to be a compositional building block and should normally be integrated into a composition or performance curriculum. It equally is an object of analysis both from the poietic point of view and the esthetic. For more experienced learners, it would be unthinkable to introduce this concept without moving up from the sound object-based theory of Schaeffer as presented in the *Traité des objets musicaux* to the spectromorphological theory of Denis Smalley, which works at

the gestural level.¹³ For more advanced curricula, Smalley's development regarding gestures in space can also be introduced, whereas for less experienced audiences, the concept itself may be sufficient.¹⁴

In the author's *Making Music with Sounds*, chapter 4 is entirely devoted to gesture, which not surprisingly is placed between the level of choosing sounds and developing larger scale structures.¹⁵ This book is intended for teachers and for amateurs of all ages, but the logic behind the inclusion of gesture is relevant to anyone studying this music. It is introduced as a concept on the EARS 2 site within the project "Manipulated Sounds Intermediate."

How might one, then, place this subject into a holistic curriculum? Let's look at all four educational situations one at a time:

General music curriculum: In the general music curriculum where it is not assumed that students will specialize in this area, a class or series of classes could commence by focusing on the traditional music gesture and subsequently investigate where what we call gesture in electroacoustic music is synonymous or not. Clearly, part of this discussion would deal with the fact that a sonic gesture without human live effort is different in terms of perception from other forms of music in which gesture is also linked with the physical (i.e., where the term originated). The fact that most music today is consumed by way of media does not take away the fact that listeners can envision what the physical gesture is in any note-based composition. In electroacoustic music, by contrast, gesture is often a more conceptual notion.

Therefore, the course (or sessions therein) would evolve from note-to sound-based gestures and could introduce the basics of Smalley's theory. Illustrating the theory with carefully chosen examples from the repertoire supports appreciation, listening, and analytical knowledge. Choices can be made historically and across genres and categories, indicating that in some cases, gestures do not appear in certain (types of) works at all. However, learning about this without applying it is only half the story. Assuming that this general curriculum is not solely theoretical (at which point this chapter is entirely irrelevant), students should be offered the opportunity to create various electroacoustic gestures out of context and, time permitting, within a greater musical context.

In this way, the electroacoustic musical gesture is introduced holistically, relating it to the traditional musical gesture, to a relevant theory within electroacoustic music, to repertoire-based sound examples, and applied creatively to understand better the means of construction and the placement of gestures into a larger context.

This exemplifies the proposed approach. How many such subjects would appear in a module is dependent on the total time available. The point here is to link it to scholarship and practice while applying relevant available technologies.

Specialist curriculum: One can only assume that, in a specialist curriculum, there is more time for a subject such as gesture. In this case, one might be able to come to grips with both Schaefferian and Smalley's theories in greater detail. Students could create gestures using dissimilar platforms (e.g., a sequencer-based software, a real-time platform, and/or postdigital instruments), and they could analyze works focusing on gestural development within larger musical structures. Again, this is dependent on time allocation, previous experience, facilities, and so on. It is fairly unthinkable that this subject would not appear in a specialist curriculum and equally unthinkable that it would only be taught with respect to either practice or just theory.

An elective curriculum: Clearly, students gaining an introduction to electroacoustic music in an elective curriculum will have less time than others. Therefore, the question is: why introduce this subject at all? As gesture is a fundamental concept in electroacoustic music, and as it exists in traditional music as well, it is an ideal subject for identifying similarities and differences with respect to note-based genres.

Given limited time, a well-designed creative exercise would be needed where potential material, means of combining that material, and potential musical gesture types would need to be restricted. Again, elements from Smalley's theory can be used to determine any of the abovementioned considerations. Listening to relevant note- and sound-based examples would ensure understanding of how the notion of gesture is often essential to both types of music. Gaining an elementary level of knowledge of how gestures can work as building blocks of a work's evolution (or structural framework) is feasible at this level. Therefore, the subject is easily integrated into an elective curriculum, even with very little time available in class by using those creative and listening examples outside the classroom.

A curriculum for schools or extended education: For this situation, it is clear that listening and making will deserve a higher priority than theory, which will primarily be of value in terms of basic concepts, given the practical interests of young people and amateurs (for lack of a better word; the potential interest in this music is well built into this term). As stated, both in *Making Music with Sounds* and on the EARS 2 site, gestures are introduced.¹⁶ Using *Compose with Sounds* that, like EARS 2, is free to all users, the creation of musical gestures with pre- or self-chosen sonic materials and basic gesture types is easy to facilitate. Again, introducing the gesture without allowing students to hear various examples is not ideal. Thus, as in the other examples, an appropriate technology (an eLearning platform or a textbook plus creative software for beginners) is directly linked with the introduction of knowledge, both general and by way of listening and creative application. How much is achieved is directly based on the time available and the level of the group in question. Experience demonstrates that at the pre-middle school level, the number

of concepts should be well constrained. From middle school (age 11–14) onward, everything in the book and on EARS 2 can be of relevance. The eLearning site works at three levels and could thus be introduced over three years, with a finite number of music sessions annually.

Clearly gesture is not the sole focus in any module. It would normally be embedded within a modular curriculum focusing on compositional building blocks, again a subject that can be approached holistically as easily as gesture is above.

It is not possible to detail how to work this out further within the constraints of this chapter. Gesture might form a single or multiple sessions within a higher education module or a subject within a single session in schools, reflecting the fact that a specialist curriculum will normally last three to four years, a module in a general music curriculum one academic year, an elective one semester, and a school- or community-based introduction a matter of hours, often ranging from three to six (per year).

Taking this one step further, what might be the foci of an entire course or that year- or semester-long module? The answer is that this is the art of creative curriculum development. What one can achieve is a reflection of the intake of the module, the time and resources available, and so on. The educator or teaching team should attempt to define the essential aspects of what they believe needs to be delivered and ideally package this in a manner that offers the widest number of genres and categories within sonic creativity, a good overview of current technologies, repertoire, and scholarly underpinnings.

A course is, at best, a *capita selecta*, which optimally delivers a number of basic aspects of knowledge and skills as well as, in our case, creative developmental opportunities. As long as these are met and the skills and knowledge for future work opportunities are satisfied (not in the sense of a liberal arts graduate's ability to work anywhere, but instead within the field itself), a curriculum founded on holism is an efficient and educationally rich means of becoming acquainted with and increasing interest and skills in any area within electroacoustic music and its cognate field of studies.

A Word About Collaborative Endeavor: Toward Electroacoustic Musicking

Before coming to this chapter's conclusion, a final section focused on collaboration deserves attention. Traditionally performers and composers, at least within the realm of art music, the traditional focus of musical study, were taught primarily to work individually. In the case of performance, working in ensembles forms an essential part of learning as well, but note that these ensembles are generally directed. Collective creativity is not usually part of a music program unless jazz and other forms of collective endeavor are being taught.

Ironically, the vocational approaches of “the electroacoustic composer” and (to a lesser extent) “the electroacoustic performer” live on, continuing a tradition rooted in the craft of art music production. The reality is nonetheless different. As mentioned previously, today’s electroacoustic musician is often involved in every aspect of production, performance, and dissemination. Still, this can and often remains an individual endeavor.

It is strongly suggested that, within today’s and tomorrow’s electroacoustic music curricula, collaborative endeavor should be integrated and encouraged.

Let’s take two examples, namely, sonic sampling and do-it-yourself music making, both of which are means of electroacoustic music production and both of which exist within music as well as many other areas within today’s society, whether related to the arts or elsewhere. These examples are chosen in part because they both rather defy the art music tradition in which electroacoustic music’s early years resided, thus again pointing to the socio-cultural dimension of the subject area.

Either or both could form an extremely holistic theme for a curriculum as described earlier. Although an individual can be involved with each of these areas, their main traditions involve working collaboratively. In the case of do-it-yourself production, one can speak of the co-creation of instruments and performance based on the hacked instruments; in the case of sampling, this involves either the creation of a sample-based work that can be sequentially recomposed by others (and often includes feedback from those involved) or the simultaneous use of samples in a live context.

In particular, in the case of sampling, one might speak of the reverse of the norm where innovative concepts from high art are applied in commercial art. Here, collaborative protocols from popular culture are applied within innovative sonic artistic creation.

As stated, sampling and hacking cultures permeate society, although one can make the case that at least sampling occurred in music first. Their collectivist nature, their counter-cultural *raison d’être*, and the fact that both are *not*, by definition, elitist, suggest that such innovative art forms may be of direct relevance to a larger sector of the population than is currently the case. “Do It Together” and sampling cultures, the latter sometimes involving pseudonyms due to ongoing legality issues, often combine innovative trends with collaborative making and, at times, a political dramaturgy, thus linking art to society in a more direct manner than high art normally involves.¹⁷

The teaching of electroacoustic music in traditional music departments might make such scenarios challenging, but as a dynamic art form that is very much a reflection of today’s highly technological society, such subcultures form an integral part of the whole. With this in mind, investigating collaborative making and relating it to the act of musicking is an element well worth integrating into an electroacoustic music curriculum,

whether for young children, who love to work together, or for the specialist postgraduate student and beyond, or students in between.

Looking Forward

The author has often wondered why, in a research-driven environment such as a university, so many aspects of music education are based on celebrating the known. Art is about challenging society, it is said, or at least, challenging the norm. If this is so, why do so many popular music courses, for example, avoid originality? Even electroacoustic music courses run the risk of simply perpetuating the successful means of production developed over decades of acousmatic music production, which in a positive sense led to a critical mass of musicians but in a negative sense created a less dynamic subfield of electroacoustic music than many others.

The field is still evolving quickly, is highly innovative, and continues to grow both in terms of its breadth and depth. If there is one part of the field that is less dynamic, it is its (ethno)musicological areas, and this should change. Higher education, at least in terms of developing interest and tomorrow's specialists, should reflect these needs for innovation and cultural understanding. What this means is not only celebrating the past and better understanding the present but also helping to predict and build the future. Electroacoustic musicology needs to take its interdisciplinary into account and deal with its unique aspects, borrowing from traditional musicology where applicable as well as exploring other areas of new media art, its home in today's art world. As stated earlier, the inclusion of musicology—or of electroacoustic music studies—within a curriculum is a requirement. Integrating this with relevant studies in science and technology and, of course, in artistic production is a formula to create tomorrow's thinking musicians and practicing musicologists. Such holistic approaches take the sound-based paradigm into account, applying it to local circumstances within the wide diversity of forms and contexts of today's as well as tomorrow's music and music education.

Notes

1. This subject is of great interest to the author, who went to a university that favored a particular aesthetic that was not his own and where some staff members spoke of certain experimental composers with disdain, reflecting the diversity of 20th-century history books of the time that favored specific composers above others, ranging from the more neo-classically oriented to the more radical. In our postmodern society, perhaps presenting the broadest possible spectrum of repertoire is the best way to help students discover their own interests.
2. Leigh Landy, "music Technology, Music technology or Music Technology," *Contemporary Music Review* 32, no. 5 (2013): 459–71.
3. Schaeffer's most important text, the *Traité des objets musicaux* (1966), included the subtitle "essai interdisciplines."

4. The Music Department at the University of York (UK) introduced the project system in its curriculum in the latter decades of the last century. This inspired the author to do the same at Bretton Hall (UK) during his years as Head of Music. Here he developed an innovative curriculum for the BA (Hons) Contemporary Musics course in which two-thirds of the program was project-based and taught in intensive blocks.
5. As part of the outreach aspect of his research, the author has spent a great deal of time investigating potential interest in electroacoustic music among people of all ages (e.g., the Intention/Reception project, documented in Weale 2006 and Landy 2006), as well as generating data supporting its introduction into pre-tertiary education and developing access tools, both pedagogical and creative (e.g., Landy 2012, the EARS 2 eLearning site, ears2.dmu.ac.uk, and its associated creative software, Compose with Sounds, ears2.dmu.ac.uk/cws, all aimed at middle school age but open to users from late primary age to older adults). We shall return to the latter tools in our holistic curriculum examples.
6. In 2003, when the Electroacoustic Studies Network (www.ems-network.org) was established, the founding directors, including the author, felt that using the word “musicology” could limit the number of people who might want to attend their events, which are focused on musical knowledge related to electroacoustic musical practices (as opposed to the more technical knowledge that is the focus of many other organizations’ events). As the term “electroacoustic music studies” has subsequently been adopted internationally, it will be used here.
7. Leigh Landy, *Understanding the Art of Sound Organization* (Cambridge, MA: The MIT Press, 2007).
8. It is true that some works of sound-based music involve no plugged-in technology, but its signification was the least ambiguous.
9. The EARS site may be helpful in this regard in terms of thematic areas. Readers can view the subject index and focus on the section “Musicology of Electroacoustic Music,” including all bibliographical citations related to each entry.
10. Leigh Landy, “The ‘Something to Hold on to Factor’ in Timbral Composition,” *Contemporary Music Review* 10, no. 2 (1994): 49–60.
11. See, for example, the website “Technology and Creativity in Electroacoustic Music (TaCEM)” (full web address given in the bibliography) and Michael Clarke, Frédéric Dufeu, and Peter Manning, *Inside Computer Music* (New York: Oxford University Press, 2020).
12. Simon Emmerson and Leigh Landy, eds., *Expanding the Horizon of Electroacoustic Music Analysis* (Cambridge: Cambridge University Press, 2016).
13. See, for example, Denis Smalley, “Spectro-Morphology and Structuring Processes,” in *The Language of Electroacoustic Music*, ed. Simon Emmerson (Basingstoke: Macmillan, 1986), 61–93, and idem, “Spectromorphology: Explaining Sound Shapes,” *Organised Sound* 2, no. 2 (1997): 107–26.
14. Denis Smalley, “Space-Form and the Acousmatic Image,” *Organised Sound* 12, no. 1 (2007): 35–58.
15. Leigh Landy, *Making Music with Sounds* (New York: Routledge, 2012), 95–126.
16. In fact, on EARS 2, all “projects” (one or more lessons with a given theme at a given level) involve aspects related to the general categories: learn, listen, and create, reflecting this chapter’s vision.
17. Another example of note regarding collaborative sonic musicking would be telematic multi-location performance, which is obviously relevant to both practices.

Selected Bibliography

- Clarke, Michael, Frédéric Dufeu, and Peter Manning. *Inside Computer Music*. New York: Oxford University Press, 2020.
- Compose with Sounds (software). ears2.dmu.ac.uk/cws.
- EARS (the ElectroAcoustic Resource Site). www.ears.dmu.ac.uk.
- EARS 2 (the EARS 2 pedagogical project). ears2.dmu.ac.uk.
- Emmerson, Simon, and Leigh Landy, eds. *Expanding the Horizon of Electroacoustic Music Analysis*. Cambridge: Cambridge University Press, 2016.
- Landy, Leigh. "The Intention/Reception Project." In *Analytical Methods of Electroacoustic Music*, edited by Mary Simoni, 29–53 + appendix on DVD. New York: Routledge, 2006.
- Landy, Leigh. *Making Music with Sounds*. New York: Routledge, 2012.
- Landy, Leigh. "music Technology, Music technology or Music Technology." *Contemporary Music Review* 32, no. 5 (2013): 459–71.
- Landy, Leigh. "The 'Something to Hold on to Factor' in Timbral Composition." *Contemporary Music Review* 10, no. 2 (1994): 49–60.
- Landy, Leigh. *Understanding the Art of Sound Organization*. Cambridge, MA: The MIT Press, 2007.
- Schaeffer, Pierre. *Traité des objets musicaux: essai interdisciplines*. Paris: Éditions du Seuil, 1966.
- Smalley, Denis. "Space-Form and the Acousmatic Image." *Organised Sound* 12, no. 1 (2007): 35–58.
- Smalley, Denis. "Spectro-Morphology and Structuring Processes." In *The Language of Electroacoustic Music*, edited by Simon Emmerson, 61–93. Basingstoke: Macmillan, 1986.
- Smalley, Denis. "Spectromorphology: Explaining Sound Shapes." *Organised Sound* 2, no. 2 (1997): 107–26.
- Technology and Creativity in Electroacoustic Music (TaCEM) (project and software). <https://research.hud.ac.uk/institutes-centres/tacem/>.
- Weale, Rob. "Discovering How Accessible Electroacoustic Music Can Be: The Intention/Reception Project." *Organised Sound* 11, no. 2 (2006): 189–200.