Music Composition Pedagogy: A History, Philosophy and Guide

D.M.A. Document

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By

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Abstract

Music composition pedagogy is a complex field that seems to defy codification. The idea of the composer as a creative 'genius' that arose during the eighteenth and nineteenth century changed the field forever. This study aims to understand the historical divide between Music Composition and Music Theory and its pedagogical implications.

Part I of this document is a history of music composition pedagogy that begins with the earliest mappings of musical knowledge as provided by Greek philosophy and continues to the present. Methods and modes of instruction are examined from a cognitive perspective to discern their effect on learning. Ultimately, the technical exercises that developed over time for the teaching of music composition were relegated to the domain of Music Theory apart from the creative field of Composition.

Part II of this document includes a philosophy of music composition pedagogy together with a guide for practical application. Recommendations for change are made both for the teaching of Music Theory and Composition. Educational perspectives inform an examination of previous practices and provide guidance for informed pedagogical decisions.

Dedication

Dedicated to my wife, Emily.

Acknowledgments

I would like to thank my advisors, Thomas Wells and Gregory Proctor, for their extremely generous help in developing the ideas in this study as well as my own compositional ability. I also wish to acknowledge the support of the School of Music for facilitating the presentation of my art and research with colleagues. In particular, three of my colleagues have been an extraordinary help in clarifying my ideas: thanks to Blake Henson, Robert Lunn and David Tomasacci. Thank you Emily for your support and encouragement. *Soli Deo Gloria*.

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Publications

Plazak, Joseph, David Huron and Benjamin Williams. "Fixed Average Spectra of Orchestral Instrument Tones." *Empirical Musicology Review* 5.1 (2009).

Williams, Benjamin. "Writing for Percussion." *Society of Composers, Inc. Newsletter* 39.4 (2009): 5–6.

Williams, Benjamin. "20th Century Overview." *Society of Composers, Inc. Newsletter* 39.4 (2009): 6.

Williams, Benjamin. “Writing for Guitar.” *Society of Composers, Inc. Newsletter* 39.2 (2009).

Williams, Benjamin. “2008 Student National Conference: A Review of the 2008 SCI Student National Conference at Ball State University in Muncie, Indiana.” *Society of Composers, Inc. Newsletter* 38.6 (2008): 1, 6.

Williams, Benjamin. “Fraud Competition: The Ignacy Paderewski International Composition Competition.” *Society of Composers, Inc. Newsletter* 38.6 (2008): 4–5.

Williams, Benjamin. “Spam Messages: The Moscow Musical College.” *Society of Composers, Inc. Newsletter* 38.6 (2008): 5.

Williams, Benjamin. “Computers and Composing.” *Society of Composers, Inc. Newsletter* 38.5 (2008): 4–5.

Williams, Benjamin. “Art vs. Entertainment.” *Society of Composers, Inc. Newsletter* 38.3 (2008): 5–6.

Williams, Benjamin. “Orchestration Texts.” *Society of Composers, Inc. Newsletter* 38.2 (2008): 6.

Williams, Benjamin. “Theory or Counterpoint: What Comes First?” *Society of Composers, Inc. Newsletter* 38.1 (2008): 6–7.

Fields of Study

Major Field: Music

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Introduction

Composition pedagogy may be divided into two general components: the teaching of *technique* and *creativity*. Modern practices of teaching composition in higher education tend to focus primarily on *creativity*, whereas *technique* has generally been relegated under the purview of studies in Music Theory. Ironically, the history of modern Music Theory is that of Composition until the advent of music conservatories in Europe during the nineteenth century.[1] At that time the training of young musicians was delegated into specialized areas, two of which were Music Theory and Composition—as separate disciplines for the first time. It is perhaps revealing that Paul Hindemith (1895–1963), a twentieth-century composer, would be the first to establish a post-secondary degree in Music Theory separate from Composition.[2]

It may be worth articulating the etymology of *technique* and *creativity* in order to discern an appropriate application of these concepts to the field of composition pedagogy. *Technique* can be traced back through the French *technique* and the Latin *technicus* to the Greek *tekhnikos* from *technē*, which is often translated as *craft* or *art*. *Technē*—the knowledge of how to do and make things—was contrasted with *epistêmê*—often

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[1] For various perspectives on the history of music theory, see Thomas Street Christensen, ed., *The Cambridge History of Western Music Theory* (New York: Cambridge UP, 2002).

[2] See Luther Noss, *A History of the Yale School of Music 1855–1970* (New Haven, CT: Yale School of Music, 1984).

translated as *knowledge*. *Epistêmê* is concerned with necessary truths, which are separate from everyday contingencies, the province of *technē*.[3] *Technique* may then be understood as those details, methods or skills which are applied to a particular task.

The etymology of *creativity* began much more recently than that of *technique* as the Greek language of Plato (428/7–348/7 BC) and Aristotle (348–22 BC) did not have a word corresponding to *create* or *creator*. The Romans had *facere*, but it more properly denoted *make*, not *create*. It was not until the Christian period that *creatio* came to mean something distinctly different from *facere*, which continued to describe the human function. This terminological shift was necessary to describe an act of an omnipotent God who could *creatio ex nihilo* (create from nothing). One more significant shift came around the time of Baltasar Gracián y Morales (1601–58) who applied the concept to human activity: "Art is the completion of nature, as if it were a second Creator..."[4] *Creativity* has been appropriately defined as "minimally… the capacity for, or state of, bringing something into being."[5]

I propose that a pedagogy of musical composition be adopted that would reunite *technique* and *creativity* in a common field of study. Modifications to the pedagogical approach toward the teaching of both Music Theory and Composition are proposed in

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[3] See Plato, *Complete Works*, ed. John M. Cooper (Indianapolis: Hackett, 1997); Aristotle, *Nicomachean Ethics*, 2nd ed., trans. Terence Irwin (Indianapolis: Hackett, 1999); Aristotle, *Posterior Analytics*, trans. Jonathan Barnes (Oxford: Clarendon, 1976).

[4] Wladysław Tatarkiewicz, *A History of Six Ideas: An Essay in Aesthetics*, trans. Christopher Kasparek (Boston: Nijhoff, 1980), 247–8.

[5] Carl Hausman and Albert Rothenberg, eds., *The Creativity Question* (Durham, NC: Duke UP, 1976), 6.

order to ensure that neither pursuit would remain isolated from its interrelated counterpart. By combining the "details, methods or skills which are applied to [music composition]" with the "capacity for, or state of, bringing [music] into being" a pedagogy emerges that can address all aspects of learning to compose.

Part I of this document, "A History of Music Composition Pedagogy," traces historical approaches toward the teaching of composition and demonstrates a terminal separation between Music Theory and Composition. Chapter 1 begins with the earliest mapping of musical knowledge and describes the approach to teaching a generative process of music that is somewhere between improvisation and composition, before the written musical artifact became normative. Chapter 2 continues in the eighteenth century and describes the development of technical exercises for the teaching of composition. Chapter 3 begins in the nineteenth century and discusses the seeming disparity between pedagogy and practice that led to the relegation of technical exercises to Music Theory. Chapter 4 completes this history up through the beginning of the twenty-first century.

Part II, "A Philosophy and Guide of Music Composition Pedagogy," reveals how the proposed reunion of *technique* and *creativity* may be achieved through application of historical practices to music theory and composition pedagogy. Chapter 5 suggests a treatment of music theory pedagogy utilizing compositional activities. Chapter 6 details a philosophy of composition pedagogy by examining cognitive and learning theories. Finally, Chapter 7 develops practical application from the foregoing theory of pedagogy by which Music Theory and Composition may be reunited.

Part I

A History of Music Composition Pedagogy

Chapter 1

Composition as Improvisation: Pedagogy Before the Eighteenth Century

In many respects, a history of composition pedagogy must be a history of ideas about music, and writing a history of ideas is fraught with the danger of representing past authors as if they could only clumsily describe modern ideas. Musicologist Carl Dahlhaus (1928–89) articulated this challenge:

> The picture any age forms of a section of the past is never totally independent of the controversies of its own time, in which it seeks to ascertain the nature of its own historical essence. There is a danger that (since every historian is also a child of his own time) historical judgments will be based indiscriminately and uncritically on the norms we all (necessarily) use to orientate ourselves in our own time. The best way to avoid or at least reduce the danger is to recognize it and thus seek to neutralize it, instead of allowing it to seep into the investigation of a past epoch in the form of implicit assumptions.[1]

Without examining the context of former times, the writings of past musicians will inevitably become stale and weakly representative of modern disputes. Conversely, music theorist Joel Lester has suggested that "only by being sensitive to their terminology, to

[1] Carl Dahlhaus, *Realism in Nineteenth-Century Music* (New York: Cambridge UP, 1985), 2.

their perspectives, and to their theoretical agendas can we avoid unwittingly misinterpreting the import of their ideas."[2]

1.1. Aristotelian Schematics of Music

It is perhaps fitting that a history of composition pedagogy begin with Aristotle, who said "If you would understand anything, observe its beginning and its development." The earliest mappings of musical knowledge in the Western tradition came about as an application of the Aristotelian division of knowledge to the domain of music. For Aristotle, that which can be gained through the discipline of *theoria* (theory) was not at all the same as that by *poiesis* (production) or *praxis* (practice). Whereas *theoria* is the pursuit of truth in an absolute sense, the goal of *poiesis* is the making of some product, and *praxis* is the discipline by which action is applied to a present task. More simply, these terms correlate to the domains of knowing, making and doing, respectively. However, the classifications in Aristotle's taxonomy were not unconnected or antithetical entities, but rather interrelated and interdependent. Educationalist Paulo Freire (1921–97) described the false opposition that has been at times attributed to *theoria* and *praxis*, "We find two dimensions, reflection and action, in such radical interaction that if one is sacrificed—even in part—the other immediately suffers."[3]

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[2] Joel Lester, *Compositional Theory in the Eighteenth Century* (Cambridge, MA: Harvard UP, 1992): 2.

[3] Paulo Freire, *Pedagogy of the Oppressed*, trans. Myra Bergman Ramos. (New York: Continuum, 1970), 87.

One of the earliest mappings of musical domains to apply Aristotle's division of knowledge was produced by Aristides Quintilianus in his treatise *On Music* from around the fourth century.[4] His system is arranged into two main divisions: theoretical (*theoria*) and practical (*praxis*) (see Figure 1.1).

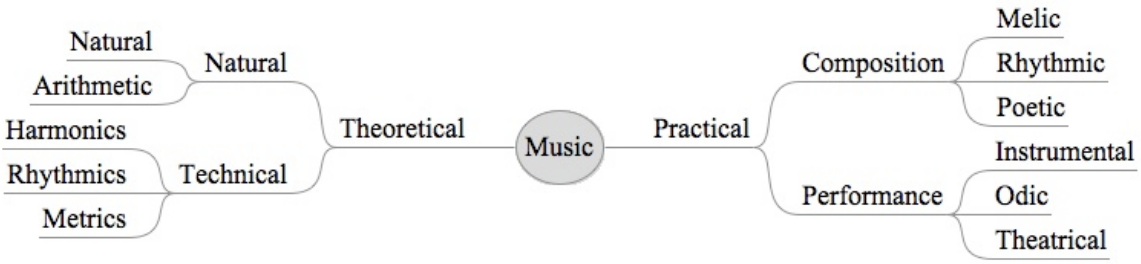

Figure 1.1. Schematic of musical knowledge as described by Aristides.

Aristides classified composition as practical musical knowledge, which may seem to suggest that the earliest division of musical knowledge separated music theory from composition. However, Aristotle's division of knowledge informs Aristides classification of composition as practical—alongside performance—and not theoretical. *Theoria*, the pursuit of truth, is primarily interested in ontological questions: What is the nature of music? For Aristides, music theory was not in any way related to descriptive or analytical studies of pieces of music or the composition or correct performance thereof. Instead, *musica theoretica*—or *harmonics*, as this speculative field was sometimes called—encompassed the pursuit of knowledge regarding what has since become the scientific study of acoustics and various branches of mathematics.

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[4] Aristides Quintilianus, *On Music, in Three Books*, trans. Thomas J. Mathiesen (New Haven: Yale UP, 1983).

Aristides' application to music of the Aristotelian division of knowledge had a lasting impact on the trajectory of composition pedagogy well into the nineteenth century. Those who have written about music more often than not have addressed issues of both *theoria* and *praxis* within any given work, as did Aristides. However, all issues regarding vocal or instrumental music were early on understood as the pursuit of *praxis*, the 'doing' of music. Writings about *praxis* included much of what has since been reclassified as music theory, such as the analysis or study of particular musical compositions.[5] In this sense, there was initially no division between what has since become the separate fields of music theory and composition.

1.2. *Praxis* versus *Poiesis*

It may be worth noting that Aristides did not include the Aristotelian concept of *poiesis* (making) in his division of musical knowledge. In fact, it was not until late in the fifteenth century that a fixed composition began to be recognized as the product of effort by an individual. The term *musica poetica* was later introduced in 1537 by Nicolaus Listenius:

> Poetic is that which is not content with just the understanding of the thing nor with only its practice, but which leaves something more after the labor of performance, as when music or a song of musicians is composed by someone whose goal is total performance and accomplishment. It consists of making or putting together more in this work which afterwards leaves the work perfect and

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[5] See Nicholas Cook, "Epistemologies of Music Theory," *The Cambridge History of Western Music Theory*, ed. Thomas Street Christensen (New York: Cambridge UP, 2002), 78–105.

> absolute, which otherwise is artificially dead. Hence the poetic musician is one who is trained in leaving something more in his achievement.[6]

One of the principal reasons that composition and performance were initially restricted from *poiesis* is the fact that these activities produced no tangible product. Rather, music had a particularly ephemeral nature as it took place in time and sound. Augustine (354–430), a fourth-century Christian who was nearly contemporary with the Greek Aristides, described the fleeting nature of music:

> [B]ecause whatever the mind is able to see is always present and is acknowledged to be immortal, numeric proportions seemed to be of this nature. But because sound is something sensible, it flows away into the past and is imprinted on the memory. By a reasonable fiction it was fabled that the Muses were the daughters of Jupiter and Memory. Now with reason bestowing its favor on the poets, need it be asked what the offspring likewise contained? And since this branch of learning partakes as well of sense as of the intellect, it received the name of *music*.[7]

Later, in the seventh-century, Isidore of Seville (560–636) more simply stated "Unless sounds are remembered by man, they perish, for they cannot be written down."[8]

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[6] Nicolaus Listenius, *Musica*, trans. Albert Seay (Colorado Springs: Colorado College Music, 1975), 3.

[7] Augustine, *Divine Providence and the Problem of Evil*, trans. Robert P. Russell (New York: Helenson, 1942), 149.

[8] Isidore of Seville, "Etymologies," trans. William Strunk, Jr. and Oliver W. Strunk, *Strunk's Source Readings in Music History*, rev. ed., ed. Leo Treitler (New York: Norton, 1998), 149.

The earliest standardized forms of musical notation in the West originated around the ninth century,[9] which likely had some bearing on the apparent ephemeral nature of music and its classification as *poiesis*. However, musical activity remained principally extemporaneous long after the development of notation. For example, the fifteenth-century polyphonic discipline of *discant*—the practice of singing consonant intervals over a melody—was mostly an art of extemporaneous singing, from which the results were only rarely written down. Written music was merely a convenience that did not carry the prestige it would later acquire:

> While the word *musicus* [which implied academic distinction but not necessarily creative activity] denoted social status and public respect, the merely technical term *compositor* was devoid of any such overtones. Anyone could technically be a *compositor* by virtue simply of committing new music to paper, irrespective of social category or rank.[10]

A demarcation between composition (making) and improvisation (doing) only began to surface around the fifteenth century. The composer-theorist Tinctoris (1435–1511) wrote:

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[9] The challenge of dating early examples of notated music in the Western tradition has been addressed in Leo Treitler, "The 'Unwritten' and 'Written Transmission' of Medieval Chant and the Start-Up of Musical Notation," *Journal of Musicology* 10.2 (1992): 131–91. Also, see Kenneth Levy, "On Gregorian Orality" *Journal of the American Musicological Society*, 43.2 (1990): 185–227.

[10] Rob C. Wegman, "From Maker to Composer: Improvisation and Musical Authorship in the Low Countries, 1450–1500," *Journal of the American Musicological Society* 49.3 (1996): 438.

> Both simple and diminished counterpoint are made in two ways, in writing and in the mind. Counterpoint that is written is usually called a "composed piece" [*res facta*]. But that which we put together in the mind we call a "counterpoint" pure and simple, and those who do this are said in common parlance to "sing over the book" [*super librum cantare*].[11]

With the advent of written counterpoint, a tangible product could be discerned and correspondingly described by a noun—*res facta* (made thing)—separate from the extemporized art of counterpoint, still described by a verb—*canter super liberum* (sing upon the book).

As an extemporaneous art, musical expression before the fifteenth century may seem to be in some sense better understood as a form of improvisation, as the pursuit of *praxis* (doing), not *poiesis* (making). However, the concept of improvisation—or, for that matter, composition—can at best be applied as an etic (from a supposedly culturally-neutral observer), rather than emic (from within a culture) concept. It is revealing that musical traditions that do not have a strong conception of the fixed musical work rarely refer to musical expression as 'improvisation,' but rather use some idiom-specific terminology that refers to the 'doing' of the activity (e.g., *canter super liberum*).[12] Rather, the concept of 'improvisation' usually arises in opposition to the 'fixed composition,' much as it did in the West.

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[11] Johannes Tinctoris, "Liber de arte contrapuncti," trans. Gary Tomlinson, *Strunk's Source Readings in Music History*, rev. ed., ed. Leo Treitler (New York: Norton, 1998), 401.

[12] See Derek Bailey, *Improvisation: Its Nature and Practice in Music* (New York: Da Capo, 1993), xii: "Idiomatic improvisers, in describing what they do, use the name of the idiom. They 'play flamenco' or 'play jazz'; some refer to what they do as just 'playing.'"

Dahlhaus has aptly summarized the challenge of understanding the fourth-century conception of music from the perspective of the twentieth century:

> The idea that music is exemplified in works [rather than in performances], no matter how firmly rooted it has become in the past century and a half, is far from self-evident.… Even up to the present time this idea is foreign to listeners who restrict their musical experience to popular music. And we would be blind captives of a habit of speaking were we to minimize the resistances met by this idea and pass over them lightly.[13]

1.3. Formulaic Constructions and Constraints on Melody

Due to the orality of musical transmission before the ninth century and the extemporaneous nature of music generation up to the fifteenth, a pedagogy of composition can only be discerned through the written treatises in comparison with the small body of notated music. However, many of the treatises on musical knowledge from the earliest times through the Middle Ages—including Aristides' *On Music*—simply catalogue musical knowledge and are therefore not clearly descriptive or prescriptive. With the few surviving manuscripts, it can be difficult to discern which came first: the theory or the practice. Rather, many approaches developed with varying levels of influence from either a body of pre-existing musical units or compositional constraints.

One approach to the teaching of melodic construction is exemplified by the Byzantine chant repertoire, which suggests a patchwork of preexisting melodic formulae. Dom Paolo Ferretti borrowed a concept from classical literature when he first labeled this

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[13] Carl Dahlhaus, *Esthetics of Music*, trans. William W. Austin (New York: Cambridge UP, 1982), 10–1.

type of compositional process as *centonization*.[14] The word comes from the Latin meaning "patchwork" and refers to poetry in which each line comes from a different preexisting source. Ferretti was describing a similar musical phenomenon that was earlier recognized by François-Auguste Gevaert (1828–1908):[15]

> While in the modern epoch the composer's first goal is to *be original*, to imagine his own motives with their respective harmony and instrumentation, the composers… of liturgical chant worked in general with traditional themes from which, by means of a process of amplification, they derived new chants.… In music, as in architecture, invention consists in constructing new works with the aid of material taken from the common domain.[16]

Statistical analyses of Byzantine chants by Nanna Shiødt indicate a strong reliance on formulaic construction.[17] In fact, the earliest Byzantine treatise on music—from the tenth century—is a catalogue of contemporary music theory that contains signs and names for

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[14] See Paolo Maria Ferretti, *Estetica gregoriana ossia Trattato delle forme musicali del canto gregoriano* (Rome: Pontificio Istituto di Musica Sacra, 1934).

[15] "En général le compositeur européen invente son oeuvre de toutes pièces ou, du moins, se propose un tel but. Le compositeur antique avait une ambition moins haute.… [In general, the European composer invents every part of his work or, at least, proposes such a goal. The ancient composer had a lower ambition….]" François August Gevaert, *Histoire et théorie de la musique de l'antiquité*, vol. 2 (Ghent, 1881), 316.

[16] "Mentre all'epoca moderna il compositore mira innanzi tutto a *essere* originale*,* a immaginare lui stesso i suoi motivi colle rispettive armonie e colla loro strumentazione, … gli autori delle cantilene liturgiche, lavoravano in generale sopra temi tradizionali dai quali, mediante un processo di amplificazione, ricavavano nuovi canti.… Come in architettura così in musica l'invenzione consisteva nel costruire opere nuove coll'aiuto di materiali presi dal dominio comune." Ferretti, 89.

[17] Nanna Schiødt, "A Computer-Aided Analysis of Thirty-Five Byzantine Hymns," *Studies in Eastern Chant*, vol. 2, ed. Miloš Velimirović (New York: Oxford UP, 1971), 129–54.

several modally-appropriate formulae that can be selected based on function (e.g., position, contour, etc.) and text.[18]

Although Ferretti's concept of *centonization* applies well to Byzantine chant (among others), its original application to Gregorian plainchant was misplaced.[19] For the West, the composition of chant melodies was instead driven by a familiarity from a young age with a network of constraints determined by the sound, syntax and sense of words.[20] As the fourth-century theologian Basil of Caesarea (330–79) said:

> To this purpose were those harmonious tones of the Psalms devised for us, that they which are either in years but young or, touching perfection of virtue, as yet not grown to ripeness, might, when they think they sing, learn.[21]

Considering the reconstructive nature of these chants with respect to the importance of the text, variants in the written transmission may be better understood as possible solutions rather than mistakes. While nearly every moment of the performance of a particular text may be predetermined, it is not the case that melodic fragments are being remembered, but rather reconstructed. This helps explain why books with only words

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[18] See Kenneth Levy and Christian Troelsgård, "Byzantine chant," *The New Grove Dictionary of Music and Musicians*, 2nd ed., 2002.

[19] See Leo Treitler, "'Centonate' Chant: 'Übles Flickwerk' or 'E pluribus unus?'" *Journal of the American Musicological Society* 28.1 (1975): 1–23; Emma Hornby, "The Transmission of Western Chant in the 8th and 9th Centuries: Evaluating Kenneth Levy's Reading of the Evidence," *Journal of Musicology* 21.3 (2004): 418–57.

[20] See Leo Trietler, "The 'Unwritten' and 'Written Transmission' of Medieval Chant and the Start-Up of Musical Notation," *The Journal of Musicology* 10.2 (1992): 131–91.

[21] Charles Sayle, *In Praise of Music; an Anthology Prepared by Charles Sayle* (London: Stock, 1897), 54.

could be circulated prior to those with pitch indications and still be referred to as "books of musical art."[22]

Following either scheme—formulaic construction of preexisting material or constraints on melodic generation—required a familiarity with a body of stylistically appropriate musical protocol. Given that all those who wrote about music in the Middle Ages were associated in some way to the church or monastery, the practical subject of the composition or performance of chant was of utmost importance. Therefore, it is only to be expected that writings regarding the *praxis* of musical knowledge would include the stylistic formulae and constraints for the rendering of melodies that express the text.

1.4. *Melic Composition*

Although it is likely that Aristides' scheme was not universally accepted or known in the Middle Ages,[23] his early description of *melic composition* is consistent with other writers of his time and can provide an indication of the earliest composition pedagogy in the West. He divided *melic composition* into three general parts (see Figure 1.2):

> [1] It is choice through which it results that the musician discovers the scale it is necessary to make from a certain position of the voice…. [2] It is mixing through which we arrange the notes one to another or the positions of the voice or the

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[22] See Bruno Stäblein, "'Gregorius Praesul,' der Prolog zum römischen Antiphonale," *Musik und Verlag: Karl Vötterle zum 65. Geburtstag*, ed. Richard Baum and Wolfgang Rehm (Kassel, 1968), 537–61.

[23] See Gerhard Pietzsch, *Die Klassifikation der Musik von Boetius bis Ugolino von Orvieto*, (Halle: Niemeyer, 1929).

genera of melody or the scales of modes. [3] Usage is the certain execution of the melody.[24]

Choice and *mixing* are issues of range and mode, respectively, the choice of which were determined by the implication of *ethos*—moral character, which Aristides and his Greek predecessors believed music could effect[25]—and were therefore dependent on text or function. However, the discussion of *usage*—which was also related to *ethos*—provides a partial insight into melodic construction through descriptions of common patterns.

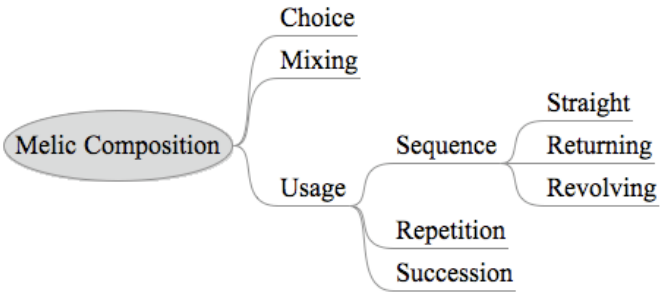

Figure 1.2. Schematic of *melic composition* as described by Aristides.[26]

Aristides describes three basic species of *usage*: *sequence* (further divided into *straight*, *returning* and *revolving*), *repetition* and *succession* (see Figures 1.3 and 1.4). A similar set of patterns was described by Cleonides around the same time as Aristides:

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[24] Aristides, 92.

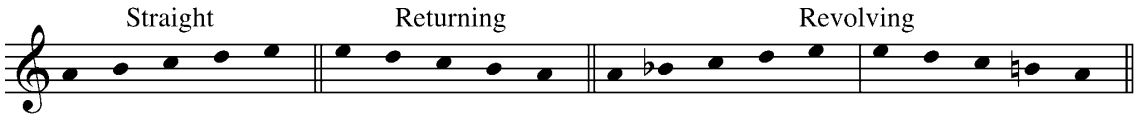
[25] See Thomas J. Mathiesen, "Harmonia and Ethos in Ancient Greek Music," *Journal of Musicology* 3.3 (1984): 264–79.

[26] Aristides, 92–3

> Melic composition is accomplished by means of four things: sequence, succession, repetition, and prolongation. Sequence is the road of melos through consecutive notes; succession, the placement of intervals alternately side by side; repetition, the repeated stroke on one tone; and prolongation, a hesitation for an extended chronos on a single utterance of the voice.[27]

These patterns were not merely theoretical constructs, but rather can be found in some of the oldest surviving literature, such as the famous Seikilos epitaph (dating from the first century).[28]

a. *Sequence*.



b. *Succession*.

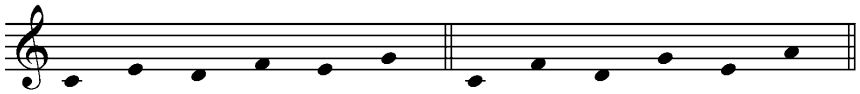


Figure 1.3. Realizations of *sequence* (a) and *succession* (b) as described by Aristides.[29]

This practice of writing *summae* of musical knowledge continued well into the Middle Ages, by which the *praxis* of contemporary stylistic formulae or constraints were

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[27] Cleonides, "Harmonic Introduction," trans. Oliver W. Strunk, *Strunk's Source Readings in Music History*, rev. ed., ed. Leo Treitler (New York: Norton, 1998), 46.

[28] See Jon Solomon, "The Seikilos Inscription: A Theoretical Analysis," *American Journal of Philology* 107.4 (1986): 455–79.

[29] Aristides, 92.

catalogued.[30] The anonymous *Musica enchiriadis* from the ninth century described the then current practice of melodic construction by means of explicating various speculative aspects of music:

> The terminal tones or finals are so called because every melody must end on one of these….
>
> The finals or terminal tones have under them one tetrachord, which is called [the tetrachord] of the graves [tones], however, there are two [tetrachords] above them, that is, those of the superiores and the excellentes, with two tones left over. And so a monophonic and properly made chant does not descend below the fifth tone from its final….[31]

The author of this treatise was not merely explaining musical terminology and theoretical constructs, but rather also describing a practice and prescribing *praxis*.

1.5. Counterpoint Pedagogy

In addition to cataloguing melodic constraints, the *Musica enchiriadis* is notable for being one of the earliest sources to describe a systematic approach to the art of selecting tones which may be combined. The author describes two means of organizing chant in parallel intervals, referred to as *organum*; one method used strictly parallel

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[30] Although it would be impractical to list every author of such a text, some significant contributors that are not otherwise mentioned here include Boethius, *De institutione musica*; Gaffurio*, De harmonia*, *Practica musice* and *Theorica musice*; Aurelian of Réôme, *Musica disciplina*; Hucbald, *Musica*; and the anonymous tenth-century treatise *Alia musica*.

[31] *Musica Enchiriadis and Scolica Enchiriadis*, trans. Raymond Erickson, ed. Claude V. Palisca (New Haven: Yale UP, 1995), 4–5.

motion whereas the other allowed for non-parallel movement at the beginning and end of a phrase. In similar fashion to the description of melody, the author describes the combination of tones with examples of common patterns:

> … a voice which is called "organal" customarily accompanies another voice called "principal" such that, in any tetrachord in any musical phrase, [the organal voice] neither descends below the tetrardus tone at the end nor rises at the beginning.…When singing according to this illustration [Figure 1.4] it is easily perceived how in the two phrases illustrated, an organal pitch cannot begin its correspondence under the tetrardus tone, nor can it legally descend below the same tone at the end. On account of this an organal voice is absorbed by the principal pitch as both come together as one at the very end.[32]

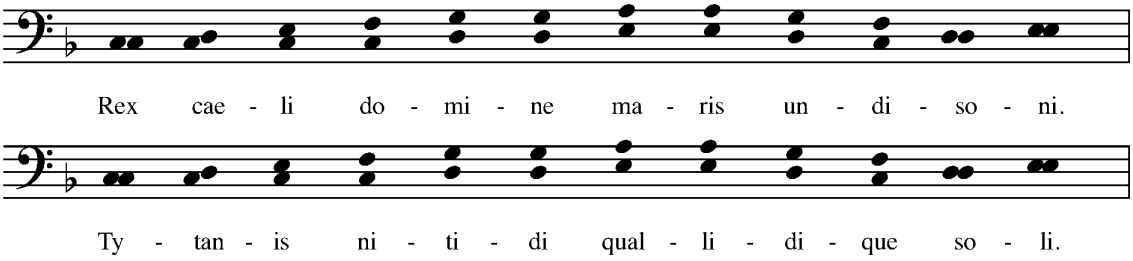

Figure 1.4. *Musica enchiriadis*, *organum* at the fourth.

Guido of Arezzo (991/2–after 1033)—the famous Italian theorist of the eleventh century who is often credited with the invention of modern musical notation—provided similar descriptions of organizing chant in multiple voices to those of the *Musica enchiriadis*, including both the strict and flexible approaches. Guido included even more specifics reflecting the contemporary style of polyphonic singing as it became more widely practiced:

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[32] *Musica Enchiriadis*, 27.

> Of the tropes, some are serviceable, others more serviceable, and still others most serviceable. Those are serviceable that provide organum only at the diatessaron…; more serviceable are those that harmonize not only with fourths but also with thirds and seconds, by a tone and, though only rarely, a semiditone…. Most serviceable are those that make organum most frequently and more smoothly, namely, the tetrardus and tritus on C and F and G; for these harmonize at the distance of a tone, a ditone, and a diatessaron.…
>
> [The] convergence on the final is preferably by a tone, less so by a ditone, and never by a semiditone.…
>
> Furthermore, the two voices must not be separated by more than a diatessaron.[33]

Guido follows this discourse with a number of examples showing that the commonly-known literature reflected the constraints about which he wrote.

Into the thirteenth century, the classification of tones that could be combined became increasingly specific as issues of rhythm and meter were taken into consideration. The anonymous "Discantus positio vulgaris" (thirteenth century) was one of the first to describe the new musical practice called *discant*, in which the strong-weak accentual patterns in contemporary poetry became translated into long-short durational patterns in music notation:

> It should be noted, moreover, that every note of the plainchant is long beyond measure, containing the measure of three tempora, while every note of the discantus is measurable, either a proper breve or the proper long. Whence it follows that over any note of the cantus firmus at least two notes should be sung, a long and a breve, or something of equal value, like four breves or three with a

[33] Guido of Arrezzo, "Micrologus," trans. Warren Babb, *Hucbald, Guido and John on Music*, ed. Claude V. Palisca (New Haven: Yale UP, 1978), 78–9.

> *plica brevis*. And the two voice parts should match each other with one of the three consonances mentioned above.[34]

This newer constraint suggested the coordination of long durations and consonances at the beginning of beat units as a means of emphasizing the rhythmical structure of the text.

The basic cataloguing of musical constraints and preexisting material is methodically clear in the "Discantus positio vulgaris." For each ascending or descending interval that the *cantus* may sing, an appropriate solution to singing *discant* is given. A typical example runs: "if the cantus firmus ascends a tone, from C to D, with the discant at the octave, the discant should descend a minor third by way of a second; and it should ascend in converse fashion when the cantus firmus descends a tone [Figure 1.5]."[35] As such, the student was introduced to possible solutions for singing *discant* against any given *cantus firmus*. Through immersion and repetition the student would eventually be able to extemporaneously and fluently produce well-formed counterpoint that would be stylistically appropriate.

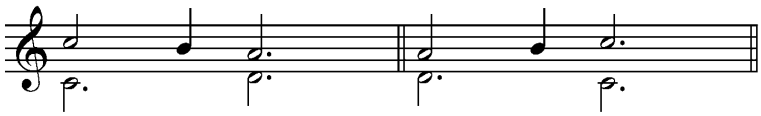

Figure 1.5. "Discantus positio vulgaris," interval progression.

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[34] "Discantus positio vulgaris," trans. James McKinnon, *Strunk's Source Readings in Music History*, rev. ed., ed. Leo Treitler (New York: Norton, 1998): 220.

[35] "Discantus positio vulgaris," 220–1.

1.6. Simultaneous Composition and the *Res Facta*

One of the most significant effects to come about as the result of the shift from a principally extemporaneous art to one interested in the *res facta*—written composition—was the potential for a distinction between successive and simultaneous compositional processes. Tinctoris noted that "[*Res facta*] differs from a counterpoint above all in that all parts… are mutually bound to one another, so that the ordering and rule of consonances of any one part must be observed with respect to each and all the others."[36] Pietro Aaron (1489–after 1545) wrote:

> According to the practice and method of older composers, a composition must first begin with the *cantus*. Then the *tenor* should follow, the *bass* third, and finally the fourth, called *alto*. … It is easily observed, however, that the composers of our time do not follow the custom of older composers to put these four parts together always in this order…. Indeed, we approve of it so much that we assert that writing a composition in this manner makes it more harmonious.[37]

Although the new, "more harmonious" music was welcomed, the adoption of simultaneous composition was only slowly accomplished, in part due to the lack of instructional writings regarding the new method. Aaron continued:

> But since it is quite difficult to do it this way and requires considerable practice and experience, we shall follow the method and order of the older composers, in which the way to composing is easier.[38]

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[36] Tinctoris, 401–2.

[37] Pietro Aaron, *De institutione harmonica libri tres* (Bolgona, 1516). Trans. Bonnie J. Blackburn, "On Compositional Process in the Fifteenth Century," *Journal of the American Musicological Society* 40.2 (1987): 213.

[38] Blackburn, 213.

The challenge of reconciling the new style of music while yet retaining—at least in principal—the traditional method of successive composition is apparent in the *Institutioni harmoniche* (1558) of Gioseffo Zarlino (1517–90). Consistent with the older approach, Zarlino wrote that "musicians customarily begin their compositions with the tenor and add to it the soprano. Then they add the bass and finally the alto."[39] In his discussion of four-voice composition, he therefore catalogues possible soprano-tenor dyads followed by lists of suitable combinations for the remaining voices (e.g., see Table 1.1). Nevertheless, Zarlino recognized that the tenor-oriented approach of earlier times was inadequate to explain the newer stylistic trends:

> The variety of the harmony… does not consist solely in the variety of the consonances—as in two voices—but in the variety of the chords. This results from the position of the note that divides the fifth in a chord, or from the position of the note that forms a third or tenth above the lowest part of a chord.[40]

Zarlino was the first to discuss the significance of major and minor triads in root position (in the terminology of later theorists), and yet he wrote very little about them and provided no practical instruction. Rather, his entire pedagogical approach to composition was suited toward the older, sacred style of his teacher Adrian Willaert (1490–1562) even as he wrote to an audience that was at the very least interested in the newer sacred music of Palestrina (1525–94).

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[39] Gioseffo Zarlino, *The Art of Counterpoint: Part Three of Le Istitutioni Harmoniche, 1558* (New Haven: Yale University Press, 1968), 181.

[40] Zarlino, 69.

From the Unison:	
If the soprano forms and the bass forms the alto will be	a unison with the tenor, a third beneath the tenor, a fifth or sixth above the bass.
But if the bass forms the alto will form a	a fifth below the tenor, a third or tenth above the bass.
Likewise if the bass forms the alto may be	a sixth below the tenor, a third or tenth above the bass. [Etc.]

Table 1.1. Zarlino's harmonies that are found between the parts of a chord.[41]

1.7. Summary

This survey of composition pedagogy prior to the eighteenth century is by no means exhaustive. However, the approach across time and place to the teaching of generative music processes (not quite improvisation nor composition, but somewhere in between) was in many ways similar. Students would learn the art of *canter*, *organum, discant* or counterpoint by becoming familiar with a body of preexisting materials or constraints. Many treatises of this period offer extended lists of patterns that could be used in extemporaneous or written music. Peter Schubert has clearly described the difference in approach to teaching music in these earlier times from a twentieth-century perspective:

> …when rhetoric was a flourishing art and the memorization of stock oratorical formulas was basic to the education of any student, artistic originality was not understood as it is today. The application of pre-composed musical fragments was

[41] Zarlino, 182.

> long considered a legitimate—indeed an essential—element of the composer's craft.[42]

Such a practice is also consistent with the original meaning of the term *componere*: to put together.

It may be interesting to note that the pedagogical approach to extemporaneous music generation illustrated in the literature before the eighteenth century is surprisingly compatible with later cognitive research into the improvisation process. To develop the improvisational skill, the required cognitive changes that are considered to be necessary are:

> (1) an increase in the memory store of objects, features, and processes—in musical, acoustic, motor (and other) aspect;
>
> (2) an increase in accessibility of this memory store due to the build-up of redundant relationships between its constituents and the aggregation of these constituents into larger cognitive assemblies;
>
> (3) an increasingly refined attunement to subtle and contextually relevant perceptual information.[43]

The principle subject of discourse regarding musical *praxis* at this time was the cataloguing of "objects, features, and processes" by which the contemporary style of

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[42] Peter Schubert, "Counterpoint Pedagogy in the Renaissance," *The Cambridge History of Western Music Theory*, ed. Thomas Street Christensen (New York: Cambridge UP, 2002), 528.

[43] Jeff Pressing, "Improvisation: Methods and Models," *Generative Processes in Music*, ed. John A. Sloboda (New York: Oxford UP, 1998), 166.

music could be recreated. It was through increased familiarity and awareness of materials and constraints that a student became an adept musician.

Despite the fact that Zarlino's teachings received criticism from some of his contemporaries for being outmoded,[44] his influence on musicians for many generations was by no means impeded. Specifically, the rigorous pedagogical use of counterpoint and thoroughbass exercises to teach composition during the eighteenth century owes much to the theoretical and practical issues with which Zarlino struggled. While the older style of the *prima pratica* remained in use for the composing of sacred music up through the eighteenth century, it was also a significant influence on Johann Joseph Fux (1660–1741) and his pedagogical method of teaching composition through counterpoint. Concurrently, the newer style of the *seconda pratica* flourished in the writing of monody, with its increased emphasis on the bass. This shift to music organized above a bass became codified through the multitude of thoroughbass methods in the seventeenth and eighteenth centuries and eventually led to Jean-Philippe Rameau's (1683–1764) theory of Harmony. In turn, studies in counterpoint and Harmony became central to the curricula of conservatories during the nineteenth century, ultimately leading to a divide between Music Theory and Composition.

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[44] For example, see Vincenzo Galilei, *Dialogo della musica anitca et della moderna* (Florence, 1581). See also Claude V. Palisca, "Vincenzo Galilei's Counterpoint Treatise: A Code for the *Seconda Pratica*," Journal of the American Musicological Society 9.2 (1956): 81–96.

Chapter 2

Practical Methods of Composition: Pedagogy During the Eighteenth Century

The eighteenth century is unique with respect to the history of composition pedagogy due to the emergence of a select few treatises that were nearly universally known throughout Western Europe and which remained widely successful and influential. Some of these tomes described instructional methods that were much more clearly prescriptive than those of previous times and were—in that sense—less ambiguous with respect to pedagogy. Others were less practical, but rather dealt with speculative issues that would affect composition pedagogy indirectly through the eventual establishment of a field for the study through analysis of instrumental or vocal music separate from the practical pursuits of composition or performance: Music Theory.

2.1. Species Counterpoint and Fux's *Gradus ad parnassum*

Just as Zarlino's *Institutioni* was influential on theorists for years to come, Johann Joseph Fux's *Gradus ad parnassum* (1725) and its systematic approach to the teaching of counterpoint had long-lasting effects directly in the area of composition pedagogy well past its own time. *Gradus* was:

> Hailed as an extraordinary work by musicians of the eighteenth century… used and highly praised by Haydn, Mozart and Beethoven. Indeed, it was accepted deep into the nineteenth century as the basic text in counterpoint; most late-eighteenth- and nineteenth-century treatises… are based upon Fux.… Furthermore, Mendelssohn, Brahms, and many other eminent musicians of the nineteenth and twentieth centuries were trained in the Fux system.[1]

Whereas Zarlino struggled to reconcile the old method of teaching by rote methods with the new style of bass-oriented triadic music, Fux explicitly stated in his preface that he was writing in response to the "unrestrained insanity" of the music in his day.[2] Notably, Fux was successful and influential in spite of the fact that in many respects it was as if the *seconda pratica* never existed.

Although Fux was not the first to teach counterpoint by isolating various species —or types—of voice interaction, his approach was also not wide-spread with contemporaneous audiences. Rather, the listing of acceptable intervallic combinations to be memorized remained a viable pedagogical method of instruction well into the eighteenth century by theorists such as Johann Mattheson (1681–1764). In comparison, Fux's method began plainly with a list of acceptable generic consonances and four rules of voice leading. Fux then goes on to illustrate five species of counterpoint in two, three and four voices as well as techniques of imitation and fugue.

The incredible success of *Gradus* is perhaps not only the result of Fux's systematic and coherent method, but rather also his pedagogical approach through the

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[1] Felix Salzer and Carl Schachter, *Counterpoint in Composition: The Study of Voice Leading*, (New York: Columbia UP, 1989): xvi.

[2] Johann Joseph Fux, *The Study of Counterpoint*, rev. ed., trans. Alfred Mann (New York: Norton, 1965), 17.

realistic modeling of student-teacher interaction in the form of a dialogue between Josephus (a student) and Aloysius (the master). In this sense, readers can imagine working through the exercises alongside Josephus, learning directly from Aloysius. The realistic representation of a student is portrayed in part through the committing and correcting of mistakes as well as the eager and persistent asking of questions.

As a dialogue, *Gradus* does not include a straightforward list of stylistic imperatives as might otherwise be expected, which is perhaps one of its most useful features at the same time that it can be maddening. Fux's approach develops a heightened sensitivity in the student to compositional problems as an increasing number of considerations are weighed. For example, Fux initially writes that counterpoint should simply begin with a perfect interval; however, Josephus later learns that modal implications must also be taken into consideration so as to avoid starting with otherwise usable fifths in certain modes.[3] In this sense, a systematic explication of Fux's theory would require a thorough reordering of the materials in order to discern which criteria are involved at any given time. However, Susan Wollenberg notes that such a revision would lessen its value:

> Fux recognizes the need to establish some basic laws of conduct, but much of his material is given in the form of suggestions, and the possibility of adjusting the rules is stressed. Each case must be considered in relation to its context and not automatically forced to conform to an invariable principle. The advice of Aloysius to Josephus, that he should rely on his own judgment and use his imagination, is

[3] Fux, 31.

> all-important. Fux's aim in the 'Gradus' is to make the student think for himself, not to promote a mechanical attitude to composition.[4]

Although Fux partly wrote his text to instruct a wayward generation in the *prima pratica*, the intended and realized pedagogical value may principally have been its approach to developing a discerning composer with problem-solving (or, perhaps more appropriately, problem-finding) skills. Lorenz Mizler—in his 1742 German translation of *Gradus*—suggested that the reason he thought a student should study Fux's work is to have "such a firm foundation that he can build upon it whatever he wishes."[5] Such composers as Haydn and Beethoven used *Gradus* at least in part as a means toward developing a better sense of discrimination when faced with musical problems rather than the particulars of the older style.[6] However, it also may be useful to consider that it was to the newer styles that Fux addressed the last few—although often neglected—chapters of *Gradus*, the Parnassus to which the young student approached through the discernment gained by practicing the strict exercises of species counterpoint.[7]

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[4] Susan Wollenberg, "The Unknown 'Gradus'," *Music and Letters* 51.4 (1970): 426.

[5] Lorenz Mizler, *Gradus ad parnassum* (Leipzig, 1742), 3. Trans. Lester, 47.

[6] See Alfred Mann, "Beethoven's Contrapuntal Studies with Haydn," *Musical Quarterly* 56.4 (1970): 711–26; Alfred Mann, "Haydn's Elementarbuch: A Document of Classical Counterpoint Instruction," *Music Forum* 3 (1973): 197–237.

[7] See Wollenberg.

2.2. Thoroughbass and Niedt's *Musicalische Handleitung*

Concurrent with the rise in popularity of studies in species counterpoint was the pervasive use and instruction of thoroughbass—a shorthand notation signifying simultaneities above a bass. However, unlike the unique success of Fux's method of species counterpoint, no singular method of thoroughbass instruction could be considered all-encompassing:

> …they appeared in collections of published music,[8] as part of composition treatises,[9] as the second part of keyboard treatises[10] and as independent publications. … Some works are merely concerned with the mechanics of figures and how to realize them[11] or concentrate on transposition,[12] while others apply thoroughbass to composition.[13] Some works are primarily for beginners or amateurs, while others are so encyclopedic they probably daunted many an experienced practitioner.[14] Some treatises are not based on any single system of

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[8] Lodovico Grossi da Viadana, *Cento concerti ecclesiastici… con il basso continuo* (Venice, 1602); Heinrich Albert, *Ander Theil der Arien* (Königsberg, 1643); Georg Philipp Telemann, *Fast allgemeines Evangelisch-Musicalisches Lieder-Buch…* [*mit*] *Unterrichte, der unter andern zur vierstimmigen Composition und zum damit verknüpften General-Basse anleitet* (Hamburg, 1730).

[9] Wolfgang Ebner, *Eine Instruction und Unterweisung zum Generalbass* (Frankfurt, 1653); Lorenzo Penna, *Li primi albori musicali* (Bologna, 1684).

[10] St. Lambert, *Les principes du clavecin* (Paris, 1707); Carl Philipp Emanuel Bach, *Versuch über die wahre Art das Clavier zu spielen* (Berlin, 1762); Daniel Gottlob Türk, *Kurze Anweisung zum Generalbaßspielen* (Halle, 1791).

[11] François Couperin, *Regle pour l'accompagnement* (Paris, 1717); Johann Mattheson, *Kleine General-Bass Schule* (Hamburg, 1735).

[12] Johann Philipp Treiber, *Der accurate Organist im General-Bass* (Jena, 1704).

[13] Friederich Erhardt Niedt, *The Musical Guide*, trans. Pamela L. Poulin and Irmgard C. Taylor (New York: Clarendon, 1989); Johann David Heinichen, *Der General-Bass in der Composition* (Dresden, 1728).

[14] Heinichen; Bach.

> harmony, while other works, especially those from after the middle of the eighteenth century, are organized according to Rameauian harmonic theories.[15] [16]

Rather, the connection between these disparate methods was the significance of the bass in the formation of triadic sonorities. However, unlike Zarlino who also recognized the importance of the bass in triadic sonorities, these authors were no longer concerned with or affected by the older tenor-oriented approach to generating music.

Much like the prevalent methods for teaching *discant* from the Middle Ages, thoroughbass instruction in the seventeenth and eighteenth centuries was focused on the learning and memorization of common patterns. One such model was dubbed the *règle de l'octave* due to its prescription of normative harmonies to be realized over each scale degree of a major or minor scale in the bass. The first publication of this sort was written by François Campion (1680–1748) in 1716 and included patterns for all twenty-four keys (e.g., see Figure 2.1). Rather than a 'rule'—as the English cognate might suggest—the *règle de l'octave* was what might be better understood as a customary or 'regular' pattern of harmonies.[17] These patterns were studied and memorized in order to become familiar with common chord successions, approaches toward the realization of unfigured basses and stylistically appropriate foundations for improvisation.

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[15] Johann Friedrich Daube, *General-Bass in drey Accorden* (Leipzig, 1756); Türk.

[16] Lester, 50. Citations in original.

[17] Various German authors referred to these patterns as *allgemein Bassleiter*, "common bass scale," (Riepel) or *allgemeine Octav Gang*, "common bass motion through an octave" (Albrechtsberger), which perhaps better reflect the contextual meaning.

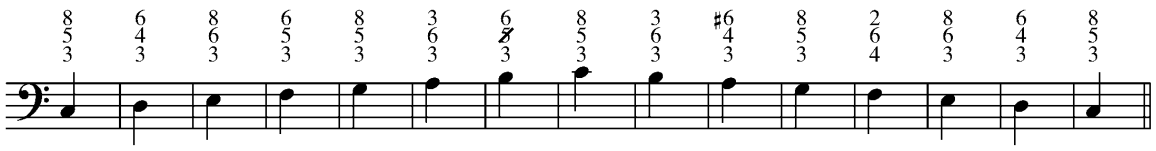

Figure 2.1. Campion's *règle de l'octave*.[18]

Although thoroughbass methods were primarily directed toward the extemporaneous realization of keyboard accompaniments, many musicians viewed thoroughbass instruction as an important component of composition pedagogy. According to C.P.E. Bach (1714–88), "[J.S. Bach's] pupils had to begin their studies by learning pure four-part thoroughbass.… The realization of a thoroughbass and the introduction to chorales are without doubt the best method of studying composition, as far as harmony is concerned."[19] Much like Fux's methods in species counterpoint, thoroughbass methods were widely used to develop in the student a foundation for composition.

Perhaps the best example of a pedagogical treatise that used thoroughbass as an explicit foundation for composition is Friderich Erhard Niedt's (1674–1717) *Musicalische Handleitung* (1706). In Part II of the *Handleitung*, Niedt demonstrates stylistic elaborations that may be applied to each interval from a second to an octave. Niedt then shows how to employ these elaborations in the realization of a thoroughbass pattern in a variety of different meters and figurations. In the final chapter, a single

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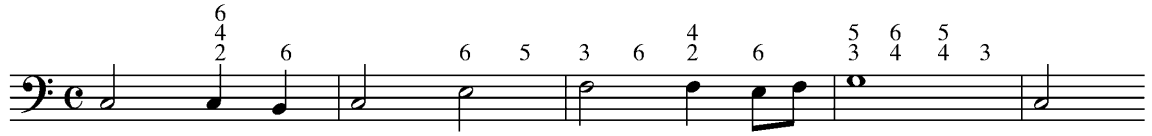
[18] See François Campion, *Traité d'accompagnement et de composition selon la regle des octaves*, facs. ed. (Geneva: Minkoff, 1976).

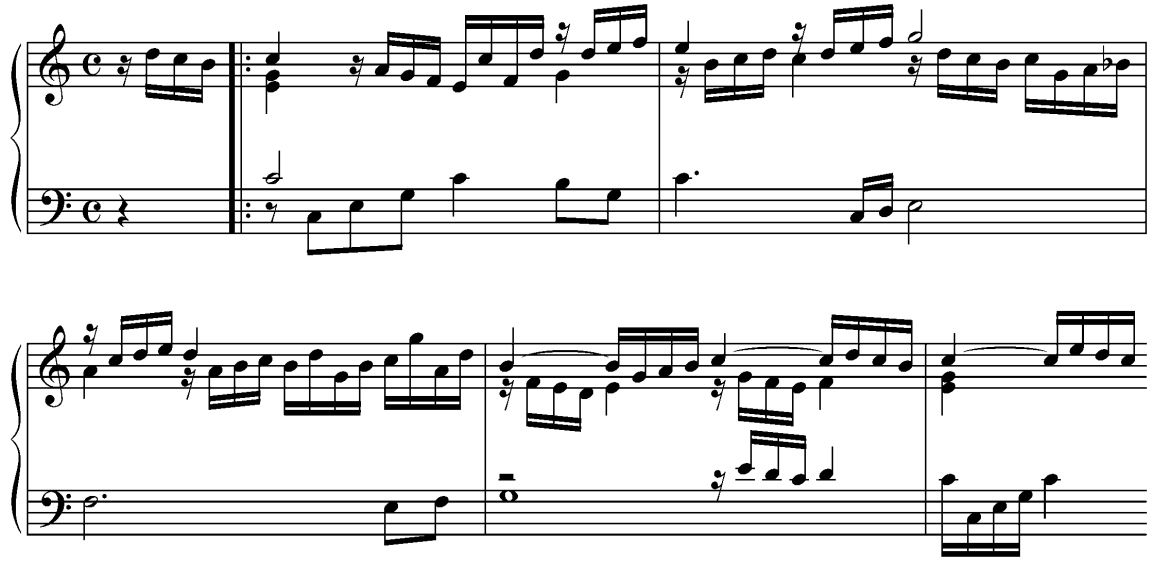
[19] Hans T. David and Arthur Mendel, eds. *The Bach Reader: A Life of Johann Sebastian Bach in Letters and Document,* rev. ed. (New York: Norton, 1966), 279.

thoroughbass example is elaborated through diminution and interpolation to generate a set of thirteen dances (e.g., see Figure 2.2). It should be noted that while these diminutions may resemble Heinrich Schenker's (1868–1935) analytical technique involving structural levels, each realization is a 'foreground,' even as some elaborations are yet further elaborated.

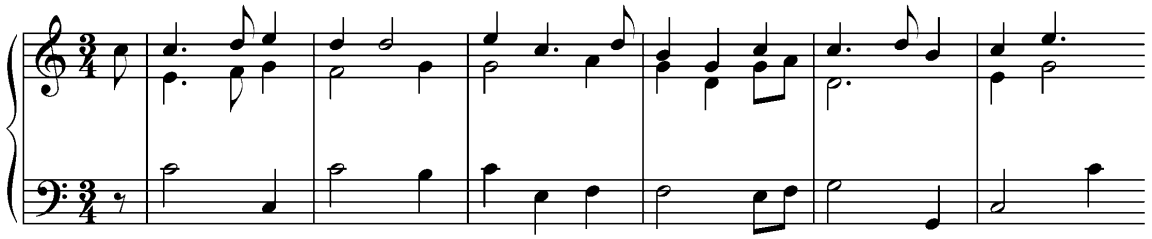
a. A sample thoroughbass pattern.



b. *Allemande [I]*



c. *Courante [II]*



d. *Gigue [II]*

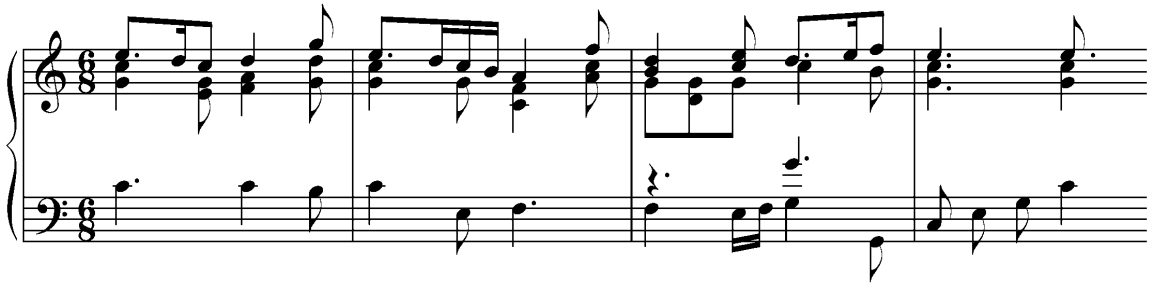


Figure 2.2. Elaborations of a thorougbass pattern (a) in various meters and styles (b–d).[20]

[20] Niedt, 156–77.

The contemporaneous rise in popularity of Fux's *Gradus* and the thoroughbass practice as means of teaching composition perhaps belies the vast differences between the two approaches. Whereas Fux's method begins simply by focusing on the intervals formed between two voices, Niedt's method begins with full triadic sonorities as implied by the thoroughbass. Fux eschewed the reworking of exercises (except for correction) and provided a unique *cantus firmus* for each new concept; Niedt's method explicitly involves the reworking of material through variations and continues to return to a select few thoroughbass patterns. Whereas Fux forfeited a systematically sequenced presentation of material in order to develop a better sense of discrimination in the student, Niedt was concerned with simplifying and streamlining the educational process:

> My true ultimate goal is this: just as a clearer and easier way now has been discovered for all the sciences and arts, I have also endeavored to find an easier way to guide the beginning eager learner through thorough-bass. It is true that the beloved old [Masters] have first shown us the way and paved the road, but they did this in such roundabout ways with such aggravating detours that a person had to spend a long time before he could reach the desired goal and purpose.[21]

2.3. Theory of Harmony and Rameau

In comparison with the fixed approach of Fux's anachronistic species counterpoint, thoroughbass methods were flexible such that any new simultaneity of interest could be represented by simply adding figures to a given bass. However, this adaptability led to the production of unwieldy catalogues listing figures to render and patterns to be memorized, such as Johann David Heinichen's (1683–1729) 960-page *Der*

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[21] Niedt, 5.

General-Bass in der Composition (1728). A more systematic explanation of chord succession and voice interaction became necessary in order to establish a viable pedagogy for performance or composition. In response, the study of Harmony arose as a third principle area of musical discourse—in addition to species counterpoint and thoroughbass—to come out of the eighteenth century.

The systematic study of Harmony can be traced to Jean-Philippe Rameau and his *Traité de l'Harmonie* from 1722. Throughout his career, Rameau subjected musical knowledge to his faculty of reason in accordance with the intellectual climate of the eighteenth century:

> Enlightenment was a desire for human affairs to be guided by rationality rather than by faith, superstition, or revelation; a belief in the power of human reason to change society and liberate the individual from the restraints of custom or arbitrary authority; all backed up by a world view increasingly validated by science rather than by religion or tradition.[22]

It is through Rameau's reasoning and systematic reordering of musical knowledge to which later musicians can attribute such concepts as chord inversion, basic harmonic progressions and cadences (or, likewise, cadential evasion).

In addition to being a philosopher of music, Rameau was a composer and organist interested in practical concerns. Therefore, his writings—such as the *Traité*—addressed both speculative and practical issues, much like the authors during the Middle Ages who wrote about both *praxis* and *theoria* within the same tome. The first two books of the

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[22] Dorinda Outram, *The Enlightenment* (New York: Cambridge UP, 1995), 3.

Traité describe a speculative, mathematical basis for Rameau's particular theory of chords and chord succession. The latter two books discuss composition and thoroughbass, respectively, although it is not until Chapter 35 that Rameau uses an example that can best be described as music rather than merely a model. Due to the fact that Rameau built his ideas on the existing contemporary practice in conjunction with verifiable scientific facts, the *Traité* quickly spread in popularity. For example, even Fuxian methods of species counterpoint were taught in terms of chords and chord successions by the end of the eighteenth century.[23]

Although the *Traité* addressed both speculative and practical issues, Rameau's familiarity with the performance or generation of music did not dissuade what he could discern through reason and speculation. One of the controversies regarding the *Traité* was Rameau's belief that harmony was the source of melody. Admittedly, Rameau wrote that the writing of 'graceful' melodies was critical to a successful piece,[24] as well as suggesting that one practical approach to composition would be to begin with the melody.[25] However, these practical concerns would not change Rameau's perspective that:

> Harmony arises from melody since the melodies produced by each voice come together to form the harmony. It is first necessary, however, to find a course for each voice which will permit them all to harmonize well together. No matter what

[23] For example, see Johann George Albrechtsberger, *Gründliche Answeisung zur Composition… zum Selbstunterrichte* (Leipzig, 1790).

[24] Jean-Philippe Rameau, *Treatise on Harmony*, trans. Philip Gossett (New York: Dover, 1971), 348.

[25] See Rameau, 178–80; 331–41.

> melodic progression is used for each individual part, the voices will join together to form a good harmony only with great difficulty, if indeed at all, unless the progressions are dictated by the rules of harmony.[26]

Rameau's interest in speculation about practical musical issues was to have a lasting impact on musical writings well past his own time. According to his new perspective:

> Music is a science which should have definite rules; these rules should be drawn from an evident principle; and this principle cannot really be known to us without the aid of mathematics. Notwithstanding all the experience I may have acquired in music from being associated with it for so long, I must confess that only with the aid of mathematics did my ideas become clear and did light replace a certain obscurity of which I was unaware before.[27]

By establishing first principles, Rameau was able to address such problems as those regarding dissonance treatment that other thoroughbass treatises could only barely solve through increased restrictions and exceptions. Even though Rameau's ideas were never universally accepted, his speculative approach to harmony through mathematics would impact nearly all studies in music well into the twentieth century. Rameau would only be the first of many to raise questions regarding instrumental or vocal music (*praxis*) in a speculative way (*theoria*); indeed, the study of Harmony would become a central component to studies in music during the nineteenth century.

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[26] Rameau, 152.

[27] Rameau, xxxv.

2.4. Melodic Form as Composition and Analysis

A fourth strand of musical inquiry that came to the fore during the eighteenth century was the study of melody and its role in determining musical form. Unlike exercises in counterpoint or thoroughbass, melodic studies never became generalized or systematized in a way that directly affected composition pedagogy. Only three theorists published anything substantial on melody during the eighteenth century: Johann Mattheson (1681–1764), Joseph Riepel (1709–82) and Heinrich Christoph Koch (1749–1860). These treatises provided the framework for the abstract idea of musical form, reflecting an application of rhetorical analysis to music. However, melodic theories of formal construction that were initially intended to be prescriptive quickly transformed into the descriptive modern study of musical analysis.[28]

Johann Mattheson held melody in high regard:

> As a rule, we pay far too little attention to the science of melody, and mix almost everything together under the science of harmony. Similarly, we consider it unimportant that those who wish to compose must be thoroughly acquainted with the melodic science as the first part of composition: thus, we always regard the melodic science as something unimportant or totally worthless, and thus do not know, understand, or consider that this noblest and most pre-eminent part is not only the true basis of all the others, but is also certainly and truthfully the only solid essence by which the emotions can be moved.[29]

His theory of melody was entirely based on rhetorical figures. He enumerated six parts of musical disposition as they related to oratory:

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[28] See Ian Bent, *Analysis* (New York: Norton, 1987).

[29] Johann Mattheson, *Critica Musica* (Hamburg, 1722), 261–2. Trans. Lester, 162.

> *Exordium*, the introduction and beginning of a melody, in which its purpose and entire intention must be shown, so that the listener is prepared and his attention is aroused.…[30]

After describing all six components of musical oration, Mattheson completed his discussion of musical rhetoric by supplying one of the earliest examples of explicit musical analysis regarding an aria by Marcello.

Joseph Riepel's theory of melody was mostly concerned with the articulation and conjoining of phrases with cadential formulae.[31] Much like Niedt's method of elaborating a given thoroughbass in order to derive new compositions, Riepel's method involved the internal expansion of a given melody in order to compose new melodies. By retaining cadential formulae, phrases could maintain their positions within a newly composed melody without affecting rhetorical function. Also like Niedt, Riepel intended each iteration to be considered a piece of music that could stand alone, that is, not as a layered analysis approach akin to Schenker's. By concentrating on the terminal points of melodies, Riepel was able to distinguish between the functional location of melodic fragments within a piece of music, unlike the comparably simplistic thoroughbass methods that had no way of explaining how musical units could fit together. Unfortunately, Riepel presented his ideas in a disjunct manner such that his treatise is not very suitable for didactic purposes.

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[30] Johann Mattheson, *Der vollkommene Capellmeister*, trans., Ernest C. Harris (Ann Arbor: UMI, 1981), 236.

[31] See Joseph Riepel, *Anfangsgründe zur musicalischen Setzkunst: De rhythmopoeïa, oder von der Tactordnung* (Frankfurt, 1752). Also, Joseph Riepel, *Unentbehrliche Anmerkungen zum Contrapunt* (Ausburg, 1768).

In his *Versuch einer Anleitung zur Composition* (1782–93), Heinrich Christoph Koch presented a thorough and systematic compendium of musical theory as it was known in the eighteenth century. His view integrates the various steams of inquiry present among his contemporaries including counterpoint, Harmony and melody:

> What then is the perfection of the creative spirit among composers to the highest degree? It is nothing other than the ability to conceive of melody harmonically; that is, to invent it in such a way that one is able to simultaneously envision the main features of its harmonic accompaniment.[32]

Koch began his study with counterpoint and Harmony before moving on to melody. His systematic presentation includes definitions from the smallest feature to the largest in an orderly manner. Koch's method is much like Riepel's in the internal expansions of melodies that may be conjoined according to cadential formulae. Noticeably different is Koch's uneven expansions of phrases, reflective of the changing styles of music during the eighteenth century.

Of the three melodic treatises of the eighteenth century, Koch's text most clearly reflects the shift from melodic theory as a prescriptive practice for composition to a descriptive practice suitable for the study of musical analysis. As such, Koch provides multiple examples from the literature with markings indicating structure. Conversely, his

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[32] "Welches ist denn aber nun die Vollkommenheit des erfindenden Geistes des Tonsetzers in ihrem höchsten Grade? Es ist dieses ist nichts anders als die Fertigkeit die Melodie harmonisch zu denken, das heißt, die so zu erfinden, daß man auch zugleich vermögend ist, die Hauptzüge ihrer harmonischen Begleitung sich dabey vorzustellen." Heinrich Christoph Koch, *Versuch einer Anleitung zur Composition*, vol. 2 (Leipzig, 1782–93), 81.

compositional method is disturbingly vague. For him, composition includes three stages: a plan (*Anlage*), its execution (*Ausführung*) and its elaboration (*Ausarbeitung*). Unfortunately, Koch never elaborates on the meaning of these terms. At best, he provides a sample plan that shows a melody that may be taken apart and recombined into a full piece, a task which is left incomplete. Rather, the study of musical analysis apart from performance or composition would play a central role in the development of the field of Music Theory, separate from Composition, near the end of the nineteenth century.

2.5. Summary

The means of composition pedagogy during the late-eighteenth century were in many ways related to the technical exercises, or *études*, that simultaneously developed for musical performance.[33] Fux systematized the counterpoint of the *prima pratica* in his *Gradus* as a basis for developing a more discerning awareness to compositional problems. Niedt demonstrated simple methods of generating music through elaborations of a thoroughbass realization in the contemporary style. It is worth noting that private composition lessons in the eighteenth century, as taught by Mozart (1756–91) for example, would typically involved extensive studies in both species counterpoint and thoroughbass exercises in order to develop a foundation for composition.[34] In addition to the practical methodologies of composition instruction (species counterpoint and

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[33] Such as those by Carl Czerny and Muzio Clementi for the keyboard; Friederich Dotzauer and Friedrich Wilhelm Grutzmacher for the cello; or Rodolphe Kreutzer and Federigo Fiorillo for the violin.

[34] See Robert Lach, *W. A. Mozart als Theoretiker* (Vienna, 1918).

thoroughbass), Rameau's speculative study of Harmony as an outgrowth of thoroughbass was also to have a great impact on composition pedagogy well into the future.

Although it would be impractical to survey every pedagogical technique discussed during the period spanning the sixteenth and eighteenth centuries, the three trends of counterpoint, thoroughbass and Harmony were far more widespread than any other method. Less widespread methods include melodic theories such as those by Johann Mattheson to address the problem as he saw it: "As a rule, we pay far too little attention to the science of melody."[35] Also in this vein were the writings of Joseph Riepel who discussed melody and phrasing with analogies to rhetoric by means of elaboration—an approach much like Niedt's, but from the perspective of melody, not thoroughbass. However, neither of these approaches was as widely disseminated or studied as Fuxian counterpoint, thoroughbass or Rameauian Harmony.[36] Rather, rhetorical melodic theories would lead to the analysis of musical form that ultimately became one of the central foundations for Music Theory apart form Composition.

It may be worth noting that whereas thoroughbass instruction was very similar to that for *discant* in its exhaustive memorization of customary patterns, Fuxian

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[35] Mattheson, *Critica Musica*, 261–2. Trans. Lester, 162.

[36] Despite the comparably infrequent use of such pedagogical methods as Mattheson's and Riepel's, eighteenth-century composers would learn and memorize stock melodic schemata for the realization of thoroughbass, or *partimenti*, in a stylistically appropriate manner. See Robert Gjerdingen, *Music in the Galant Style: Being an Essay on Various Schemata Characteristic of Eighteenth-Century Music for Courtly Chambers, Chapels, and Theaters, Including Tasteful Passages of Music Drawn from Most Excellent Chapel Masters in the Employ of Noble and Noteworthy Personages, Said Music All Collected for the Reader's Delectation on the World Wide Web* (New York: Oxford UP, 2007).

counterpoint was a distinctly unique approach that intended to develop the cognitive ability to discern musical problems with increasingly fine distinctions. From a cognitive perspective, psychologist Mark Runco notes that:

> Creativity is by no means just problem solving. Creative thinking can help when solving problems (and finding and defining them), but there is more to it. Creative art (which is surely a tautology) is often self-expressive, explorative, and aesthetic more than problem solving. Yet the separation of creativity from problem solving depends entirely on how *problem* is defined. If a problem is defined in terms of an obstacle between one's self and a goal, then much of activity of artists could be called problem solving. They may be solving the problem of finding a means to best express an idea or refine a technique. No one else would see it as a problem, especially because it is the artist's preferred activity, and he or she may be smiling and having a grand old time while doing the art.… No one sees the problem except the creator! This… is often described as *problem finding*. Problems are all that way; they are all personal interpretations. They are not givens, not objective entities.[37]

In this sense, Fux's method was useful in its development of an increasingly fine sensibility toward the finding of musical problems. Through the discovery and solution of such 'problems' students develop the ability to express an idea with musical means.

As the shift in pedagogical practice from individual study to class instruction began during the end of the eighteenth century, the study of Harmony found itself at the center of curricula for music conservatories. The continued use of the practical methods —counterpoint and thoroughbass—in addition to the focused study of Harmony and musical analysis would eventually result in a split between Music Theory and Composition as two separate fields of study in the conservatory of the nineteenth century.

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[37] Mark A. Runco, *Creativity: Theories and Themes: Research, Development and Practice*, (Boston: Elsevier, 2007), 15.

Chapter 3

Division of Music Theory and Composition: Pedagogy During the Nineteenth and Twentieth Centuries

As in previous eras, changes in composition pedagogy during the nineteenth and twentieth centuries were in part a response to both philosophical and practical changes. By this time, the concept of the *res facta*, or fixed composition, was so ingrained and elevated that the works of composers would impart a sense of greatness and awe. This time period would also see the founding and development of the music conservatory or other such institution of higher education, most notably beginning with the *Conservatoire de Paris*. At the same time that curricula were being codified by the professorate at conservatories, colleges and universities, the practical working method of composers became increasingly mystified as the product of genius. The division of Music Theory and Composition that had been brewing since the conceptualization of the *res facta* was to manifest itself in the creation of two separate departments granting two separate degrees.

3.1. The Composer as ‘Genius’

One of the byproducts of the increasing fascination with the *res facta* was the conception of the composer as a genius whose work is elevated even above that of the performer. Carl Czerny (1791–1857) commented in the 1840s:

> In the performance of [Beethoven’s] works (and even all classical composers) the player should allow throughout no modification of the composition, no addition, no abbreviation…. For one wants to hear the artwork in its original shape, as the Master thought and wrote it.[1]

Earlier, in 1790, Johann Heinrich Gottlieb Heusinger (1766–1837) wrote:

> Whatever is beautiful, brilliant, and appropriate [in a work] belongs to the composer, as to the poet, and it is the job of the virtuoso to not deface the work of the composer in performance; to give it as it is.[2]

The increased import seen in the work of composers that developed during the nineteenth century was a significant change from previous times. No longer was a composer merely one who would write down a particular, generated product of music.

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[1] “Beim Vortrage seiner Werke, (und überhaupt bei allen klassischen Autoren) darf der Spieler sich durchaus keine Änderung der Composition, keinen Zusatz, keine Abkürzung erlauben… Denn man will das Kunstwerk in seiner ursprünglichen Gestalt hören, wie der Meister es sich dachte und schrieb.” Carl Czerny, *Die Kunst des Vortrags der älteren und neuen Claviercompositionen*, (Vienna: Diabelli, 1846), 34.

[2] “Was an derselben schönes, geistreiches und treffendes ist, das gehört dem Componisten, so wie dem Dichter, und die Sache des Virtuosen ist es, dass er in seinem Vortrage das Werk des ersteren nicht verunstalte; dass er es gerade so gebe, wie es ist.” Johann Heinrich Gottlieb Heusinger, *Handbuch der Aesthetik, oder Grundsätze zur Bearbeitung und Beurtheilung der Werke einer jeden schönen Kunst, als der Poesie, Malerei, Bildhauerkunst, Musik, Mimik, Baukunst, Gartenkunst etc. etc. Für Künstler und Kunstliebhaber*, vol. 1 (Gotha: Perthes, 1797), 188.

Rather, this exalted position of the composer was that of an individual who was seen as inspired and brilliantly gifted. For all of the insights that the early-twentieth-century theorist Heinrich Schenker had into generative processes of music, he still referred to the conception of music as the "mystery of the creative moment [*Geheimnis des Schöpfungsaugenblickes*]."[3] For him, the compositional process was almost otherworldly: "The music of these geniuses is unconfined, and is but lightly chained to the eternal laws of nature."[4]

As could be expected, the change in philosophy over the course of the nineteenth century with respect to the composer as a creative 'genius' would eventually affect composition pedagogy. Early in the twentieth century, Arnold Schoenberg (1874–1951) posed a probing problem:

> The customary line is rather different: "You must be able to walk before you can dance." But it is a false comparison. For a teacher can show how to dance but not how to be inspired or how to invent an exceptional method for an exceptional case.… So what is the point of teaching how to master everyday cases?[5]

Schoenberg came to the conclusion that:

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[3] Heinrich Schenker, "Joh. S. Bach: Zwölf kleine Präludien, Nr. 6," *Das Meisterwerk in der Musik* 1 (1925): 102.

[4] Heinrich Schenker, "A Contribution to the Study of Ornamentation," trans. Hedi Siegel, *Music Forum*, vol. 4, ed. Felix Salzer (New York: Columbia, UP, 1977), 34.

[5] Arnold Schoenberg, *Style and Idea: Selected Writings of Arnold Schoenberg*, ed. Leonard Stein (New York: St. Martin's, 1975), 366.

> The greatest difficulty for the students is to find out how they could compose without being inspired. The answer is: it is impossible. But as they have to do it, nevertheless, advice has to be given.[6]

As the process of composition became increasingly mystified, pedagogues were often left with a certain degree of despondency, having been charged with the seemingly impossible task of teaching the unteachable.

The increasing interest in the creative act of composition as a cognitive process is in many ways a reflection of the growing interest in psychology at the turn of the twentieth century. A clear understanding of creativity was not forthcoming, however. Carl Jung (1875–1961), founder of analytical psychology, vaguely described the common view of the creative process as "the creation of something new [that] is not accomplished by the intellect, but by the play instinct acting from inner necessity."[7] Graham Wallas (1858–1932) developed one of the earliest models of creativity as a four-stage process: Preparation, Incubation, Illumination and Verification.[8] While the first and last stages were fairly well-understood (that is, the recognition of a problem and the confirmation that a particular solution solves the previously identified problem), they were not particular to the act of 'creating.' Rather, it was the mysterious middle stages (essentially, the waiting for and arrival of a sudden flash of insight—the 'eureka' moment) that made

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[6] Arnold Schoenberg, *Fundamentals of Musical Composition*, ed. Gerald Strang (London: Faber, 1967), 215.

[7] Carl Gustav Jung, *Psychological Types*, trans. Helton Godwin Baynes, ed. R.F.C. Hull (Princeton, NJ: Princeton UP, 1971), 123.

[8] See Graham Wallas, *The Art of Thought* (New York: Harcourt, 1926).

creativity unique. Despite these early attempts at understanding or explaining creativity, the scientific research of creative cognitive processes was essentially neglected until J.P. Guilford's (1897–1987) presidential address to the American Psychological Association in 1950.[9] [10]

3.2. *Conservatoire de Paris*

Concurrent with the increasing interest in the mystery of the creative process was the increasing codification of the music curricula at various conservatories, colleges and universities during the nineteenth century. Before this time, most instruction in musical aptitudes took place in apprentice relationships with a specialist (much like Fux's representation of Aloysius teaching Josephus) or in church schools (much like the students of Medieval times who learned chant, *discant* and *organum* by rote methods). The increasing number of public concerts and opera companies during the eighteenth century, however, required more professional musicians than could be trained in the earlier model, particularly as religious institutions lost public support. It was to fill this void that the *Conservatoire de Paris* was founded in 1795.[11]

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[9] J.P. Guilford, "Creativity," *American Psychologist* 5.9 (1950): 444–54.

[10] See Robert J. Sternberg and Todd Lubart, "The Concept of Creativity: Prospects and Paradigms," *Handbook of Creativity*, ed. Robert J. Sternberg (New York: Cambridge UP, 1999), 1–14.

[11] For an English history of the *Conservatoire*, see Cynthia M. Gessele, "The Conservatoire de Musique and National Music Education in France, 1795–1801," *Music and the French Revolution*, Ed. Boyd Malcolm (New York: Cambridge UP, 1992).

The coursework at the *Conservatoire* was in many ways comparable with private composition instruction during the eighteenth century, with a significant emphasis on Harmony and counterpoint as foundational studies for composition. Bernard Sarrette (1765–1858)—the founder of the *Conservatoire*—organized the detailed cataloguing of the curriculum in the *Méthodes du Conservatoire* in order to provide unity to the system of instruction. The composition curriculum at the *Conservatoire* was divided into *composition théorique* (voice-leading and figured bass, essentially Harmony) and *composition pratique* (counterpoint and fugue).[12] For those who wished to study composition privately, Harmony (following the tradition of Rameau) and species counterpoint (a harmonically-influenced study of Fuxian principles) were taken as prerequisites. Only upon completion of these courses would students be permitted to study composition with some of the most well-known musicians of the time who made up the faculty of the *Conservatoire*.

The application of the prerequisite standards for studies in counterpoint and Harmony before composition were strictly enforced. For example, before Hector Berlioz (1803–69) was permitted to study composition at the *Conservatoire*, he was required to make up course work in Harmony and counterpoint that he had missed in his earlier experiences.[13] When Jean-Francois Le Sueur (1760–1837)—professor of composition

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[12] Robert W. Wason, "*Musica Practica*: Music Theory as Pedagogy," *The Cambridge History of Western Music Theory*, ed. Thomas Street Christensen (New York: Cambridge UP, 2002), 60.

[13] See Hector Berlioz, *The Memoirs of Hector Berlioz*, corr. ed., trans. David Cairns (New York: Norton, 1975).

and Harmony at the *Conservatoire*—was first introduced to Berlioz in 1822, he noted that Berlioz's music showed feeling, but that there were too many 'mistakes' in harmony. Le Sueur suggested that Berlioz work with one of the other students in his classes to learn the basic principles so that he could enter the *Conservatoire* as a full student of composition. Berlioz managed to learn Le Sueur's rules of Harmony—which he described as "a kind of religion"[14]—and subsequently began studying composition privately with Le Sueur. It was not until 1826 that Berlioz became an official student of the Conservatoire, at which time he was also required to enroll in the counterpoint and fugue class taught by Antoine Reicha (1770–1836) due to his inexperience in writing with the traditional technique.

Various musical competitions played a major role in the distribution of merit for the students at the Paris *Conservatoire*, most notably including the *Prix de Rome* for composers. The competition comprised two rounds, the first of which was a display of counterpoint technique—for example, a quadruple counterpoint at the octave or a four-voice vocal fugue with three subjects. Only the students who had mastered these techniques were permitted to participate in the second round, which involved composing a cantata with soloists and orchestral accompaniment on a preselected text. The winner of this competition would receive a monetary prize and, perhaps more importantly, recognition and professional security as one of the most promising young composers.[15]

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[14] Berlioz, 50.

[15] See Peter Bloom, "Berlioz and the 'Prix de Rome' of 1830," *Journal of the American Musicological Society* 34.2 (1981): 279–304.

Berlioz found it difficult to win the Prix de Rome due to his distaste for writing counterpoint and his use of experimental orchestration. Berlioz often expressed his animosity towards fugal writing, a style that he referred to as "at once barbaric, ridiculous and absurd."[16] He was particularly annoyed by the requirement of a vocal fugue for the preliminary round of the Prix de Rome, which he found to be a poor indicator of ability in future composers of national status. The first time he entered in 1826, he had just begun his counterpoint studies with Reicha and was not able to pass the first round. He made the final round when he tried again, but his cantata was considered unplayable by the judges. Unfortunately for Berlioz, the cantatas were judged by their sound as a piano reduction. While this suited the scores of the other entrants, Berlioz's orchestrations had instrumental effects that could not be rendered by a piano. It was not until 1830 that he finally won the competition with a piece that he claimed was intentionally mediocre in its conservative style that he knew would be able to pass the judges.[17]

It is perhaps worth noting that the professors who stressed a traditional curriculum at the *Conservatoire*—and incidentally made it so difficult for the 'experimental' Berlioz to win the *Prix de Rome*—were experimenting with contemporary techniques in their own music. Peter Eliot Stone noted:

> Berlioz's frequent fugal passages, his reharmonization of melodies on each recurrence, the asymmetric metre of the 'Dance of the Soothsayers' in L'enfance du Christ, his general rhythmic flexibility, his concept of the ideal orchestra, his

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[16] Catherine Massip, "Berlioz and Early Music," *Berlioz: Past, Present and Future*, ed. Peter Bloom (Rochester: U of Rochester P, 2003), 29.

[17] Bloom, 280.

> use of the timpani and his emphasis on the wind instruments all reflect Reicha's influence….[18]

Reicha had a reputation for experimenting with unusual ensembles for several years before Berlioz came to Paris, and wrote about how composing for new ensembles required a new way of writing.[19] Le Sueur was noted for his awareness of performance spaces in his large-scale ceremonial works and had studied Greek rhythms, which influenced Berlioz toward a heightened expression of drama and a sort of emancipated rhythm in his music.[20]

3.3. The Theory-Composition Divide

A perceived disconnect between the pedagogical tasks employed in the curricula of conservatories or universities and the apparent mysteriousness of the creative process arose during the nineteenth century. Anton Bruckner (1824–96) famously said "Look Gentlemen, this is the rule. Of course, I don't compose that way."[21] Robert Wason notes that:

> When asked about the amount of time that should be devoted to the study of harmony in the curriculum for young composers, Bruckner replied that three years

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[18] Peter Eliot Stone, "Reicha, Antoine," *The New Grove Dictionary of Music and Musicians*, 2nd ed., 2002.

[19] See David Charlton, "Learning the Past," *Berlioz: Past, Present, and Future*, ed. Peter Bloom (Rochester: U of Rochester P, 2003), 37–46.

[20] David Cairns, *Berlioz*, vol. 1 (London: Deutsch, 1989), 117–8.

[21] Heinrich Schenker, *Harmony* (Chicago: U of Chicago P, 1954), 177, n. 2.

> were absolutely necessary (for harmony according to Sechter, of course), while for composition a few months would do, since composition was not really teachable anyway.[22]

This sentiment led many pedagogues to question whether it was appropriate to continue teaching composition with the same methods as their predecessors. As the nineteenth century came to a close, the creative pursuit of contemporary styles for composition began to emerge as a field of its own apart from the systematic and practical studies of counterpoint or Harmony, which were eventually to become transferred to the modern field of Music Theory.

Having studied at the *Conservatoire*, Vincent d'Indy (1851–1931) expressed great dissatisfaction with its professors of composition: "They did not properly understand either their *art* or their *craft*."[23] When later asked in 1892 to sit on a State Commission charged with restructuring the curriculum of the *Conservatoire*, d'Indy took the opportunity to suggest sweeping reforms. However, his ideas were too expensive to implement. Bitter with disappointment, d'Indy declined an offer to join the faculty as a professor of composition. Rather, d'Indy and his ideas would play an integral role in the newly founded *Schola Cantorum* where he took over for Alexandre Guilmant (1837–1911)—another defector from the *Conservatoire*—as director in 1904.

D'Indy's philosophy of music was published in his *Cours de composition musicale* and more succinctly expressed in his 1900 opening address for the *Schola*

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[22] Robert W. Wason, *Viennese Harmonic Theory from Albrechtsberger to Schenker and Schoenberg* (Ann Arbor: UMI, 1985), 67.

[23] Andrew Thomson, *Vincent D'Indy and His World* (New York: Oxford UP, 1996), 23.

Cantorum: "Art is not a *metier* (trade)."[24] The first stage of composition studies at the *Schola* included numerous exercises in order to develop technique, but it was in the second stage that "where *metier* ends, art begins."[25] However, noticeably missing were any exercises in species counterpoint or thoroughbass, the core studies of the *Conservatoire*. d'Indy's ideological recounting of history in the *Cours* lightly skipped over the Baroque and pre-Classical eras (except J.S. Bach) in order to connect Ludwig van Beethoven (1770–1827) and César Franck (1822–90) back to composers such as Palestrina from the 'Middle Ages' (d'Indy's classification).[26] d'Indy lamented the 'tyranny of the barline' in Baroque counterpoint resulting in "symmetrical and foursquare forms" and the manner of thoroughbass instruction with which "each man tries to classify chords as best he can, laboriously erecting a framework of rules which he is obliged to break in practice."[27]

The idea that studies in Fuxian-counterpoint and Harmony could—or at least should—no longer serve as preludes to studies in composition led to a divide between the fields of Music Theory and Composition at the turn of the twentieth century. In Vienna, for example, the difference between Heinrich Schenker as a theorist and Arnold Schoenberg as a composer could be discerned by an examination of their respective pedagogical writings regarding Harmony as noted by Robert Wason:

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[24] Thomson, 118.

[25] Thomson, 118.

[26] See Vincent d' Indy, *Cours de composition musicale* (Paris: Durand, 1902).

[27] Thomson, 87.

> Schenker's *Harmonielehre* radically revised the discipline by banishing the study of voice-leading to the volumes on counterpoint he was then writing; "harmony" became, in effect, the first step to analysis rather than composition. Schoenberg's pedagogy of harmony, on the other hand, remained a preparation for composition.[28]

However, despite his use of Harmony as a precursor to composition, Schoenberg hardly wrote about his own approach of twelve-tone composition. In some respects, Schoenberg's serialist successors—including such theorist-composers as George Perle (1915–2009) and Milton Babbitt (b. 1916)—represent an attempt to retain studies in Music Theory and Composition as a unified pursuit with a single goal. Unfortunately, the study of serial techniques similarly became relegated to the analytical pursuit of Music Theory as the resultant music fell out of favor with the public.[29]

3.4. Summary

By the middle of the twentieth century, the separation of Music Theory from Composition was essentially complete. It was around this time that composer Paul Hindemith developed the first post-secondary degree-program in Music Theory at the Yale School of Music.[30] Hindemith's views about counterpoint and Harmony were demonstrative of the separation:

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[28] Wason, 68.

[29] See John Covach, "Twelve-tone Theory," *The Cambridge History of Western Music Theory*, ed. Thomas Street Christensen (New York: Cambridge UP, 2002), 603–27.

[30] See Noss.

> In Fux's time, it was possible to get along with the material he worked out. But when the technique of composition developed further, … the teaching of harmonic phenomena and their treatment was set off in a separate field known as Harmony.… In this new procedure, the new progress in composition seemed to have found the education method appropriate to it. But that method soon turned out to be inadequate…. On the other hand, the Fux system has lasted two hundred years and is still passed on from teacher to student almost in its original form—a grotesque state of affairs when one realizes that the practice of composition has long since forsaken the bases of this system.… The want of something more suited to our own problems has long been felt.
>
> If, then, every music student must go through these two courses of study, adapting himself painfully at first to the one, only to be torn away from it before he is really used to it and then have to begin all over again on the other, finally to realize that even when he has mastered the new discipline he has acquired no real master over his tonal materials—is it any wonder that the idea should arise that a composer should not let himself be disturbed by what he has learned in his theory lessons?[31]

While studies in counterpoint and Harmony were still seen as useful for the sake of more fully understanding music from other times (under the purview of Music Theory), they were no longer viewed as useful for the production of new music (Composition).

Despite the nearly-ubiquitous acceptance of the view that counterpoint and Harmony should no longer be considered preludes to studies in composition, it should be noted that certain pedagogues of the twentieth century saw no discontinuity between the past and present. For example, Igor Stravinsky (1882–1971) wrote:

> In truth, I should be hard pressed to cite for you a single fact in the history of art that might be qualified as revolutionary. Art is by essence constructive.

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[31] Paul Hindemith, *The Craft of Musical Composition*, vol. 1, trans. Arthur Mendel (New York: Associated Music, 1942): 5–6.

> Revolution implies a disruption of equilibrium. To speak of revolution is to speak of temporary chaos. Now art is the contrary to chaos.[32]

> Tradition is entirely different from habit, even from an excellent habit, since habit is by definition an unconscious acquisition and tends to become mechanical, whereas tradition results from a conscious and deliberate acceptance. A real tradition is not the relic of a past that is irretrievably gone; it is a living force that animates and informs the present.[33]

Nevertheless, the standard model for the teaching of music in higher education continued to divide Music Theory from Composition as two separate fields of study. Indeed, such integrated models—e.g., the composition studio of renowned pedagogue Nadia Boulanger (1887–1979), which in many ways continued to employ the *Conservatoire*-like focus on counterpoint and Harmony as preludes to composition up through the 1970s—fell out of the mainstream during the late-twentieth century.

With the increased interest in psychology at the turn of the twentieth century, it may be worth examining the perspective of cognitive psychologists with respect to Shoenberg's query: "What is the point of teaching how to master everyday cases?" In part, expertise in a given domain provides the relevant knowledge necessary to make novel associations at multiple levels, i.e., the "discovery of the applicability of an existing schema in a new situation."[34] Psychologist K. Anders Ericsson has suggested that

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[32] Igor Stravinsky, *Poetics of Music in the Form of Six Lessons*, trans. Arthur Knodel and Ingolf Dahl (Cambridge: Harvard UP, 1947), 15.

[33] Stravinsky, 75.

[34] Michael Wertheimer, "Max Wertheimer: Modern Cognitive Psychology and the Gestalt Problem," *Portraits of Pioneers in Psychology*, vol. 1, ed. Gregory A. Kimble, Michael Wertheimer and Charlotte White (Hillsdale, NJ: Erlbaum, 1991), 190.

> To attain the highest level of performance possible… it is necessary both to specialize and to engage in the activity full time.… Even for the most successful ("talented") individuals, … mastery of [the domain] requires approximately 10 years of essentially full-time preparation."[35]

In order to achieve expertise, Ericsson suggests the need for "deliberate practice":

> In almost every domain, methods for instruction and efficient training have developed in parallel with the accumulation of relevant knowledge and techniques.… The training activities are designed to improve specific aspects of performance through repetition and successive refinement.…
>
> Unlike play, deliberate practice is not inherently motivating; and unlike work, it does not lead to immediate social and monetary rewards.…[36]

Furthermore, Ericsson notes that these conditions were often realized in the context of apprenticeships (such as those between Fux's Josephus and Aloysius) long before organized education became the norm:

> A significant element of apprenticeship is the imitation of skilled performers and careful study and copying of their work. In the arts the study and imitation of masterpieces has a long history.[37]

Indeed, this mode of composition pedagogy—even after the establishment of organized education—was the most common practice up until the nineteenth century.

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[35] K. Anders Ericsson and Neil Charness, "Expert Performance: Its Structure and Acquisition," *American Psychologist* 49.8 (1994): 738.

[36] Ericsson and Charness, 738.

[37] Ericsson and Charness, 739.

It would perhaps appear negligent to discuss the concept *expertise* without mentioning Abraham Luchins' fear that experience and knowledge may result in *Einstellung,* a predisposed attitude to use learned solutions in novel contexts.[38] According to this view, the accumulation of knowledge may be necessary for creativity, but too much may lead to mechanization—a sort of necessary evil. Ironically, it was nearly half a century later before studies were undertaken to determine the generality of Luchins' findings.[39] In such studies, it has been noted that "students instructed to solve problems with rules do not necessarily show rigidity or insensitivity to changes in problem-solving requirements."[40] Also:

> Ordinary experts can be inflexible, that is unable to resist the temptation of choosing a well-known solution, and that for them 'inflexibility of experts' is reality. However, … super experts maintain control over their performance, noticing and taking into account even the smallest, and, on first sight, maybe irrelevant, details. Inflexibility of experts is both myth and reality. But the greater the degree of expertise, the more of a myth it becomes.[41]

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[38] See Abraham S. Luchins, *Mechanizations in Problem Solving; The Effect of Einstellung* (Evanston, IL: APA, 1942).

[39] Edmund Fantino et al., "Rules and Problem Solving: Another Look," *American Journal of Psychology* 116.4 (2003): 614.

[40] Fantino et al., 629.

[41] Merim Bilalić, Peter McLeod and Fernand Gobet, "Inflexibility of Experts—Reality or Myth? Quantifying the *Einstellung* Effect in Chess Masters," *Cognitive Psychology*, 56.2 (2008): 97.

Furthermore, it has been demonstrated that knowledge or awareness of the *Einstellung* problem can facilitate problem-solving tasks.[42] Rather than a necessary outcome of expertise, *Einstellung* results as a context-specific phenomenon that may be deterrable by increased expertise and awareness.

As the twentieth century came to a close, the fields of Music Theory and Composition in higher education remained fundamentally separated. Music Theory remained rooted in the studies of counterpoint and Harmony as it served composers, performers and academics alike. Composition continued to carry a sense of mystique rooted in creativity. While in many respects the fields overlapped—at least in intention, if not reality—they were no longer unified as they had been up until the twentieth century.

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[42] See David M. Lane and Dean G. Jensen, "Einstellung: Knowledge of the Phenomenon Facilitates Problem Solving," *Human Factors and Ergonomics Society Annual Meeting Proceedings* 37 (1993): 1277–80.

Chapter 4

Composition as Separate from Music Theory: Pedagogy through the Early-Twenty-First Century

While it may be possible to provide a more exhaustive discussion of pedagogical methods and techniques from the end of the twentieth century and turn of the twentieth-first century compared to any previous time (due to the ever-increasing accessibility of publication), the unwieldy results would likely be far less useful than an examination of some general, characteristic features related to the modern division of Music Theory and Composition pedagogy. In particular, it would be illuminating to examine the formation and development of the National Association of Schools of Music (NASM)—which as of 2010 has approximately 625 accredited institutional members—as well as a selection of composition method-books written during the latter part of the twentieth century. In contrast, it may also be interesting to examine the results of recent research involving artificial intelligence in creativity, which has facilitated the development of learning models and yet has remained almost entirely separate from Composition pedagogy.

4.1. The Divide Between Creativity and Technique, and NASM

In many respects, the greatest challenge for the pedagogue of Music Theory or Composition at the turn of the twenty-first century was the accumulation of knowledge to the point of saturation and specialization. Professors of Music Theory in post-secondary education continued to include studies in counterpoint and Harmony, much like their predecessors of the eighteenth century. Courses in orchestration were also added following the nineteenth-century publication of such texts as Berlioz's *Grand Traité d'Instrumentation et d'Orchestration Modernes* from 1843–4. Increasingly, technology—with respect to acoustics and electronics—similarly became a required component of the Music Theory curriculum. Separately, studies in Composition required students to be not only technically adept, but also creative.

The inevitable result of the unwieldy accumulation of competencies at the turn of the twenty-first century in conjunction with the extent to which each had become specialized was a divide between the pedagogy of creativity and technique. Each of the areas of technical expertise—e.g., counterpoint, Harmony, orchestration, technology—became a unique course under the purview of Music Theory. Creativity, the remaining area for potential expertise, essentially became the now-specialized domain of Composition. In the best of circumstances, this model allows for an intense focus on any given aspect of music while at the same time retaining an integrated perspective. In the worst-case scenario, this same model would permit the instruction of any given area as if it was divorced from the others. It would be no surprise to find that "the idea should arise that a composer should not let himself be disturbed by what he has learned in his theory

lessons,"[1] as Hindemith lamented. Furthermore, it would not be surprising if a student were to be deficient in some given area due to the overwhelming requirements of a growing undergraduate curriculum.

In part as a response to a growing need for some minimum standard of achievement in music programs at the post-secondary level, Gilbert Raynolds Combs (1863–1934) founded NASM in 1924. As NASM continues to develop standards for post-secondary studies in music, the need for instruction in composition as an integral part of all undergraduate music education has been recognized:

> Students must acquire a rudimentary capacity to create derivative or original music both extemporaneously and in written form; for example, the imitation of various musical styles, improvisation on pre-existing materials, the creation of original compositions, experimentation with various sound sources, and manipulating the common elements in non-traditional ways.[2]

Also:

> Professional musicians benefit significantly from study and experience in the creation of musical works because the musician's challenge of creating musical coherence requires the integration of knowledge and skills in performance, theory, and historical styles and practice. It also develops the musical mind, hones analytical capacities, and develops sensitivity to the possibilities of musical structures.[3]

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[1] Hindemith, 6.

[2] NASM, *Handbook 2009–2010* (Reston, VA: NASM, 2008), 84.

[3] NASM, "Notes for Music Faculty and Administrators: Standards for Composition/ Improvisation, History/Repertory and Technology in Undergraduate Professional Degrees in Music," (Reston, VA: NASM, 2007), 1.

Not only do the NASM standards recognize that composers can benefit from a variety of activities related to musical generation, but they also suggest that such activities would be beneficial to every musician. In this sense, this ideal resembles the integration of all activities related to vocal or instrumental music (including composition, performance, analysis, etc.) under the purview of *praxis*, as described by Aristides sixteen centuries earlier, as discussed in Chapter 1.

Despite its establishment of broad standards related to generative music processes, NASM has not provided further guidelines as to how these ideals might be realized. NASM standards—in general—have been made intentionally flexible so as to not restrict innovation; however, the recommendations related to composition are surprisingly—if not frustratingly—vague:

> NASM does not promote a particular approach to this composition and improvisation standard. It does not require or even suggest that a separate class be offered.… Each institution chooses its own content, approach, time frame, and evaluation methods.…
>
> Perhaps the best place to start is by determining present goals and objectives for student competence in composition and improvisation—in other words, starting with the *what* and the *why* before proceeding to the *how*.[4]

Indeed, it is probably better that NASM not recommend any particular mode of pedagogy if it can not even articulate what it means to be a 'competent' student composer, let alone why any given method be employed to achieve such status.

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[4] NASM, "An Advisory for Music Faculty and Administrators: NASM Standards—Composition and Improvisation," (Reston, VA: NASM, 2007), 2.

The problem of establishing necessary competencies for a student composer has become a difficult subject as pedagogues seek to avoid stifling the creativity of students. This is further exacerbated by an evasion of value judgments in a musical culture that is in part defined by a wide variety of differing aesthetics. The general competency guidelines suggested by NASM for undergraduate composition degrees require:

> Achievement of the highest possible level of skill in the use of basic concepts, tools, techniques, and procedures to develop a composition from concept to finished product. This involves the competency to work with both electronic and acoustic media; work with a variety of forms, styles, and notations; and apply principles of scoring appropriate to particular compositions.[5]

In graduate work:

> The doctoral degree program in composition stresses creative activity emphasizing the development of a personal aesthetic expressible in sound. Competencies also include a broad knowledge of historical and contemporary compositional practices, music theory, history and criticism, and creative approaches to relationships of these to the compositional process.[6]

And, at every level:

> Students must demonstrate achievement of professional, entry-level competence in the major area, including significant technical mastery, capability to produce work and solve professional problems independently, and a coherent set of artistic/intellectual goals that are evident in their work. [7]

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[5] NASM, *Handbook*, 88.

[6] NASM, *Handbook*, 112.

[7] NASM, *Handbook*, 85.

Vaguely, these guidelines suggest that undergraduates should focus on the development of technical ability and that a creative, personal aesthetic should be developed by the time a student graduates with a doctoral degree.

Charles Rosen (b. 1927), in the first issue of *Perspectives of New Music*, suggested that "the separation of activities which should not only be linked but should blend and merge one into the other has become pathological today."[8] This is in some sense exemplified in the division between the technical components of music as Music Theory and the creative components as Composition. It would perhaps be useful to note that the reconciliation of these two pursuits—the development of both technical and creative competencies—would secure in students the "rudimentary skill and greater insight into creative and communicative processes of music through the formulation of musical ideas in purely musical terms," as desired by NASM.[9]

Rosen ended his polemic on music study in higher education with a challenge:

> Those students who wish to study about music should be given courses in harmony, counterpoint, fugue, orchestration, twelve-tone technique, and enough engineering to compose electronic music. They should learn how to figure a bass and how to read score at the keyboard. The music of the past should be examined, historically if necessary, to find out what it can teach us about composition. In conservatories, more contemporary works should be demanded of all instrumentalists, and they should certainly all be taught composition, too. If this were even half carried out, the standard of musical education would be incalculably higher.… Those who wish really to study music should be taught

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[8] Charles Rosen, "The Proper Study of Music," *Perspectives of New Music* 1.1 (1962): 82.

[9] NASM, "Standards—Composition and Improvisation," 1.

> *composition* in all of its contemporary forms: we may then hope and pray that the majority will never become composers.[10]

4.2. A Brief Sample of Twentieth-Century Textbooks

In addition to the implementation of competency standards, pedagogues have designed textbooks intended to guide students through what is thought necessary to learn the art of composition. Such a solution would by no means be novel to the twentieth century; rather, an examination of texts from the latter part of the twentieth century may illuminate the specialization of Composition with its focus on creativity. It should also be noted that the selection of a particular text by an instructor does not necessarily imply how it is used. Every text likely has a wide range of possibility for success or failure that is in part dependent on its implementation by the instructor. Yet, the focus of a particular text will inevitably guide the instructional design in some manner.

In part, composition texts of the twentieth century were written as a response to the lack of studies in new music in higher education. With the increase in specialization, techniques of contemporary music were not necessarily addressed by studies in Music Theory. Leon Dallin (1918–93) begins his *Techniques of Twentieth Century Composition* (1957) by suggesting that "the training of musicians no longer begins with the music of the eighteenth century and ends with that of the nineteenth century."[11] However, the challenge of writing such a text is that at various institutions "courses in composition and

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[10] Rosen, 88.

[11] Leon Dallin, *Techniques of Twentieth Century Composition* (Dubuque, IA: Brown, 1957), xi.

modern music are offered at different levels with varying prerequisites."[12] Out of necessity, Dallin's text was designed to systematically address and catalogue every imaginable issue related to contemporary composition, much like Heinichen's 960-page tome on thoroughbass.

It is perhaps inevitable that a text such as Dallin's that attempts to address every aspect of contemporary music would provide somewhat limited discussion or instruction in at least some areas. Dallin begins his text with a chapter on melodic contour and organization. After discussing these aspects with respect to nine examples from the literature, Dallin suggests the following assignments:

1. Examine early twentieth-century scores to find conventional melodies illustrating various contours. … Copy the melodies and write brief analyses of their salient features.

2. Write original melodies in a traditional style, at first deliberately imitating the models. Later, concentrate on developing strength of thematic idea and effectiveness of presentation in a more personal manner.

3. Make contour graphs of the melodies written for Assignment [2] and check them for compliance with the principles outlined in this chapter. Revise the melodies as necessary to eliminate any flaws that are detected.

4. Read the chapters on melody in *The Shaping Forces in Music* by Ernst Toch.[13]

Each unit has similar assignments in which the student is expected to perform further individual research followed by attempts at emulation and ultimately the development of

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[12] Dallin, xiv.

[13] Dallin, 18.

a personal style. In one sense, this resembles earlier pedagogical methods: examination of models followed by imitation in order to develop technique that can be applied to an individual style. However, unlike earlier tomes—such as the *Gradus*—very little guidance is provided on how to even begin. For example, what constitutes 'imitation'? Which aspects should be retained? Which may be modified freely? What defines a 'personal manner'? Without guidance by a well-informed instructor, such exercises may prove futile.

Recognizing that Composition is a specialized study in a practical domain, Ellis Kohs (1916–2000) wrote *Musical Composition: Projects in Ways and Means* (1980) in order to "go beyond the elements of musicianship, of harmony, form, counterpoint, orchestration, and music history, and to set forth some of the questions related to compositional procedure, style, and esthetics."[14] Each of several projects begins by establishing eleven pre-compositional considerations: style, meter, motives, length, mood or character, tempo, range, dynamics, climax, extra-musical ideas and audience. Here, instead of examining the work of other composers or considering any particular technique, Kohs demonstrates how a composer might generate a piece of music from a given set of parameters. The emphasis for Kohs is on the modeling of a sample compositional project between conceptualization or planning and execution.

In many respects, a text such as Kohs' that relies on an assumed transfer of technique or general musicianship to composition while meanwhile limiting its focus to a

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[14] Ellis B. Kohs, *Musical Composition: Projects in Ways and Means* (Metuchen, NJ: Scarecrow, 1980): iv.

particular stage of the compositional process has the potential for students to never make such cross-discipline transfers. When discussing the study and experience of scores, Kohs states:

> One may hope that this "information" will be assimilated and "processed" within. If one has a truly personal thumbprint and good intuitions, something new and valid and interesting will emerge. It is a miraculous process, like life itself. Students, like the caterpillar, may in due time shed their "house" and, like the butterfly, take wing.[15]

Assignments include tasks such as:

> Using Table [4.1] as a model, prepare a table of pre-compositional considerations for a work using only unmeasured pitches. Write the work so as to be consistent with the original plan, allowing for minor adjustments. In a brief accompanying statement, describe what you have composed and evaluate it to the best of your ability.[16]

However, Kohs does not at any point provide guidance as to what pre-compositional choices are suitable or usable. Kohs' text is similar to Dallin's in the sense that they both could be effective given a well-informed instructor. However, they both also could perpetuate the challenges of composition pedagogy inherent to the increased specialization of musical knowledge in the twentieth century.

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[15] Kohs, 11.

[16] Kohs, 22.

STYLE	Pentatonic scale: C-D-F-G-A
MEDIUM	Solo voice.
MOTIVES	None.
LENGTH	Short. Impossible to measure details without precise metric indications; bar lines used to indicate elapsed time, 40 seconds.
MOOD, CHARACTER	Abstract vocalise.
TEMPO	Slow.
RANGE	That of a soprano or tenor voice.
DYNAMICS	From ff to pp to ff.
CLIMAX	At the very end.
EXTRA-MUSICAL IDEAS	None.
AUDIENCE	Concert. (Encore piece?)

Table 4.1. Pre-compositional considerations for a short composition.[17]

Between trying to include every contemporary technique imaginable in a single tome—such as Dallin's text—and focusing on merely one aspect of the compositional process—as in the text by Kohs—William Russo's (1928–2003) *Composing Music: A New Approach* (1983) attempts to integrate knowledge and experience throughout. "This book is for anyone and everyone who want to compose music… even those who have only a minimal background in music."[18] Each aspect of music is introduced and examined through the use of exercises. For example, the book begins with a unit on the cell by asking the student to complete the following exercise:

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[17] Kohs, 16.

[18] William Russo, *Composing Music: A New Approach* (Englewood Cliffs, NJ: Prentice, 1983), v.

> Imagine that you have been captured by the Lorac, a warlike tribe ruled by Edrevol, who will spare your life only if you please him with the music you write for the Imperial Flute. The Imperial Flute can, however, play only four tones. [See Figure 4.1]… Compose a melody for this four-tone flute.[19]

Figure 4.1. Tones available for use in an exercise for melodic construction with a cell.[20]

The limitation of resources can allow the student to focus on a particular aspect of the music without becoming overwhelmed by all of the information available in the specialized fields of Music Theory and Composition. Stravinsky noted that "the more constraints one imposes, the more one frees one's self of the chains that shackle the spirit."[21]

One of the challenges of a text—such as Russo's—that attempts to construct musical knowledge through experience is the possibility for students to never recognize certain aspects of music that remain unstated. For example, the interval between the first and last pitches of Figure 4.1 is a perfect fifth, which tends to suggest a sense of stability and perhaps even pitch centricity (depending on its use). While this aspect of such an intervallic relationship is not stated, Russo provides a sample solution (Figure 4.2) to a similar exercise (with pitch-classes F, A, B and C) that reflects strong emphasis on

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[19] Russo, 5.

[20] Russo, 5.

[21] Stravinsky, 65.

perfect-fifth relationships despite his earlier recommendation to "Use 2nds and 3rds freely. Take care with skips…"[22] Just as those texts by Dallin and Kohs, Russo's text is challenged by the contemporary model of music education with such severe specialization that it became extremely difficult to construct knowledge through exercises in the way that Fux did with his *Gradus*. However, it should be remembered that Fux did not intend to do more than build a foundation of understanding and discernment upon which a student may build, as discussed in Chapter 2.

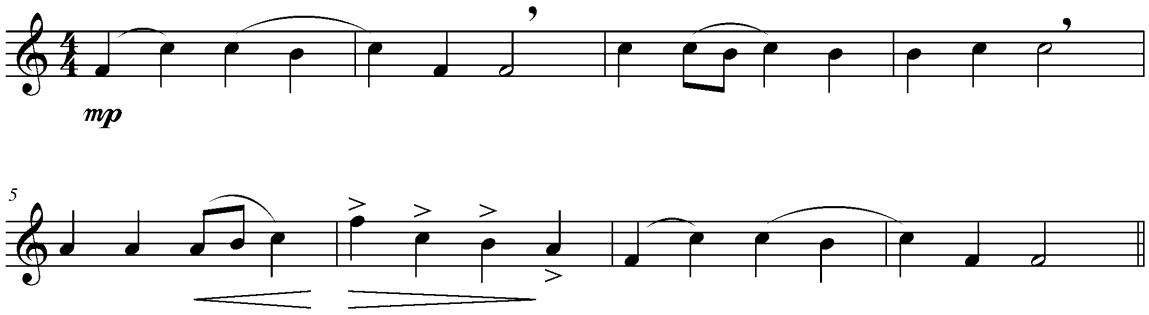

Figure 4.2. Sample composition with limited pitch content.

4.3. Artificial Intelligence and Composition

At the same time that pedagogues attempted to develop useful models for music education in the latter half of the twentieth century, computer scientists were making important advances in the field of artificial intelligence. In the 1980s David Rumelhart and James McClelland developed a new set of computational tools that allowed for

[22] Russo, 1.

parallel distributed processing (PDP) that modeled human cognition.[23] Shortly thereafter, Peter M. Todd and Gareth Loy published a book describing the first musical applications of these tools: the first attempt to apply artificial intelligence to musical tasks.[24] This sort of engineering eventually led to David Cope's *Experiments in Musical Intelligence*,[25] a software 'composer.' While the principle focus of this research has been toward the artificial emulation of human intelligence, this field may have also led to a greater understanding of what is necessary to compose original music.

One of the earlier methods of computational music generation involved algorithmic techniques by which a learned (programmed) transition table (established by encoding and analyzing seed music in a given database) specified the probability of the next note in a melody as a function of its previous context. Michael Mozer noted two drawbacks to this method:

> First, [these types of] algorithms are designed so that a particular note, n, cannot be used to predict note $n + i$ unless all intervening notes, $n + 1, \ldots, n + i - 1$, are also considered. In general, one would expect that the most useful predictor of a note is the immediately preceding note, but cases exist where notes $n, \ldots, n + k$ are more useful predictors of note $n + i$ than notes $n + k + 1, \ldots, n + i - 1$ (e.g., a melody in which high-pitch and low-pitch phrases alternate, as in the solo violin partitas of J.S. Bach). The second, and perhaps more serious, drawback is that a symbolic representation of notes does not facilitate generalization from one musical context to perceptually similar contexts. For instance, the congruity of

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[23] See David E. Rumelhart and James L. McClelland, *Parallel Distributed Processing: Explorations in the Microstructure of Cognition* (Cambridge, MA: MIT P, 1986).

[24] Peter M. Todd and D. Gareth Loy, eds., *Music and Connectionism* (Cambridge, MA: MIT P, 1991).

[25] David Cope, *Experiments in Musical Intelligence* (Madison, WI: A-R Editions, 1996).

> octaves is not encoded, nor is the abstract notion of intervals such as a 'minor third'.[26]

The most significant drawback to these early models was the seeming inability of computers to 'learn' to take large-scale musical processes into consideration. The resultant music therefore tended to lack a sense of coherency such that even the best models produced "compositions only their mother could love."[27]

David Cope (b. 1941) developed several techniques for overcoming the problem of note-to-note algorithms in his development of the program *Experiments in Musical Intelligence*. One such solution was to analyze the music with respect to destination notes: "distance to cadence, position of groupings in relation to meter, and other context-sensitive features."[28] For example, Figure 4.3 illustrates a simple series of voice-leading projections from a given chord that was then emulated to produce the music in Figure 4.4 by retaining the first and last groupings and maintaining the note-to-note rules established by a database of Bach Chorales. Additionally, Cope programmed *Experiments in Musical Intelligence* to recognize *musical signatures*—"contiguous note patterns that recur in two

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[26] Michael C. Mozer, "Neural Network Music Composition by Prediction: Exploring the benefits of Psychoacoustic Constraints and Multiscale Processing," *Connection Science* 6.2/3 (1994): 247–80, rpt. *Musical Networks: Parallel Distributed Perception and Performance*, Niall Griffith and Peter M. Todd, eds. (Cambridge, MA.: MIT P, 1999): 230.

[27] Mozer, 254.

[28] David Cope, *Computer Models of Musical Creativity* (Cambridge, MA: MIT P, 2005), 92.

or more works of a composer and that serve in some way to characterize this composer's musical style"[29]—and musical texture or character in stylistically-significant groupings.

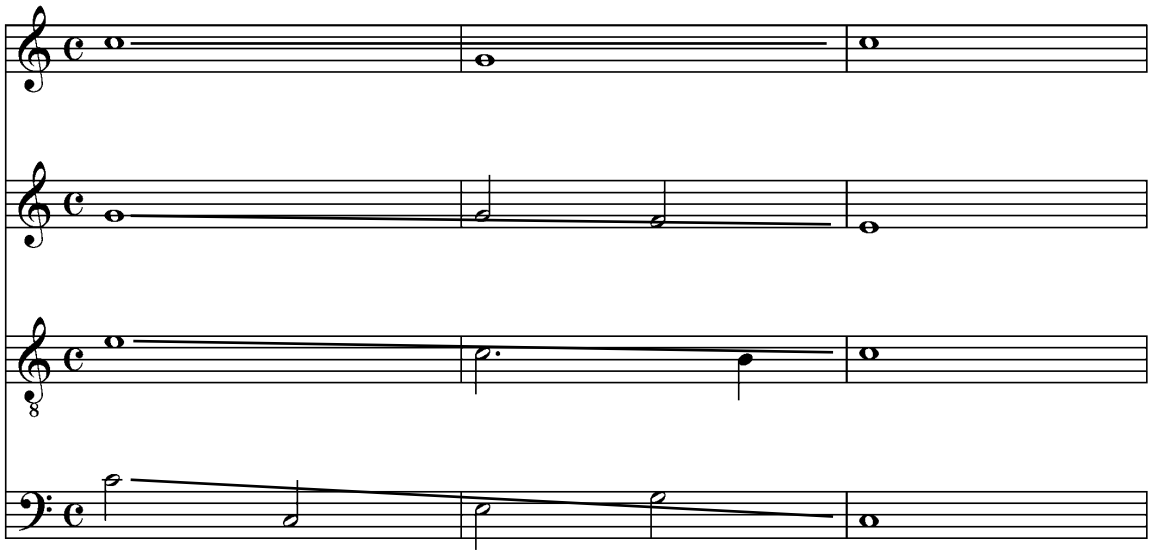

Figure 4.3. A sample series of voice-leadings from a first chord.[30]

[29] Cope, *Computer Models*, 95.

[30] Cope, *Computer Models*, 94.

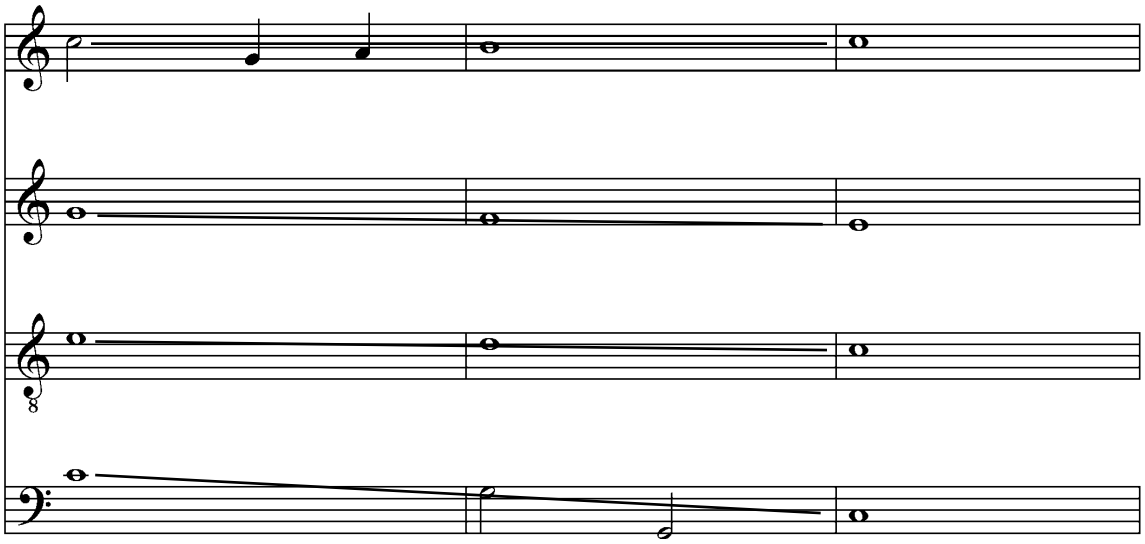

Figure 4.4. An emulation of Figure 4.4 that maintains structural voice-leading.[31]

In the design of *Experiments in Musical Intelligence*, Cope focused on five principles of creativity:

1. Creativity does not originate from a vacuum, but rather synthesizes the work of others, no matter how original the results may seem.

2. Creativity relies in part on the juxtaposition of allusions to the work of others.

3. Creativity requires learning and knowledge in order to produce useful rather than arbitrary results.

4. Creativity is not limited to note-to-note motions, but occurs at every structural level.

5. Creativity develops within enfolding and influencing contexts, and not in isolation.[32]

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[31] Cope, *Computer Models*, 94.

[32] Cope, *Computer Models*, 368.

While there are other parameters that may be discussed with respect to the generation of music—e.g., orchestration, dynamics, etc.—Cope decided on the use of these constituents of creativity because they "represent the most important and computable parameters, and because… these other areas often rely on subjective interpretation rather than on empirical definition."[33]

Cope continued to develop algorithms that could emulate various components of human creativity. Whereas the five principles that were central to the design of *Experiments in Musical Intelligence* allowed for an incredibly accurate style-emulator, Cope established four further principles that allow for novel creation:

1. In order for computer programs to create, they must themselves develop and extend rules, and not simply follow instructions provided by programmers.

2. Musical creativity relies on composers, performers, and listeners associating their experiences across a broad landscape of music tradition.

3. Creativity depends on the integration of its various characteristics into a unified whole in which the sum is greater than the total of the individual parts.

4. Creativity depends on aesthetic values that themselves depend, at least in part, on the acceptance or rejection of others.[34]

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[33] Cope, *Computer Models*, 267.

[34] Cope, *Computer Models*, 368.

Cope used these further principles to design Emily Howell, a computer program that can use elements of a variety of styles or aesthetics in order to create novel music in a unique and evolving style.[35]

Irrespective of the philosophical questions that come about when considering the musical output from models of artificial intelligence (What is creativity? Is it important that creators know they are creating? Is it important that creators appreciate their own creations?), the research and design that was necessary to create such programs as *Experiments in Musical Intelligence* has illuminated significant components of human cognition and creativity. For example, creativity requires a great deal of knowledge and familiarity with the work of others. Creativity also necessitates the learning of useful patterns or solutions rather than those that arbitrary. Technical components such as these must be developed in order to allow for the novel association of various styles and aesthetics into a unique and evolving personal style.

4.4. Summary

As the twentieth century came to a close, the nearly century-old division between Music Theory and Composition developed in part into a division between the pedagogy of technique and creativity, respectively. The increased body of knowledge in various musical domains led to saturation and ultimately specialization, which at times resulted in a fractured musical education. NASM developed standards in the hopes of ensuring a minimum level of competency for post-secondary music education. Unfortunately, while

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[35] Cope, *Computer Models*, 374.

the standards demonstrate a high valuation of composition studies, the specific guidelines for the teaching of composition are entirely vague. Rather, NASM wisely suggested seeking out the "*what* and the *why* before proceeding to the *how*."

Various modes of composition pedagogy could be discerned through the textbooks authored during the latter part of the twentieth century that similarly reflect the division between technique and creativity. Some texts specialized in modern techniques, recognizing that a vast body of literature describing older styles already existed. Others focused explicitly on the compositional process, entirely excluding any studies of other music or techniques. As a sort of middle-ground, other texts sought to teach some general principles through self-discovery in various student projects. Yet, all of these texts were for the most part no longer concerned with music of the past, which had been relegated to the domain of Music Theory. Along with the music of the past went the various technical studies of the past, such as counterpoint and Harmony. While it may be assumed that a composition student in the twenty-first century would also study these specialized courses at some point, they are no longer considered preludes to composition.

It is perhaps ironic that at the same time that technique and creativity parted ways in post-secondary music education, computer scientists were developing software instances of artificial intelligence that by necessity integrated creativity and technique. Successful emulations of musical styles by a computer require careful analysis of a wide variety of technical components and the ability to discern those features that are pertinent. For truly novel composition—as opposed to mere emulation—the computer must be exposed to a variety of musical styles or aesthetics and have the ability to integrate

various components into a unified whole. Essentially, the computer must be able to develop its own 'rules' by recognizing useful patterns in examined music and integrate the knowledge in novel ways.

While it may be undesirable—or perhaps even repulsive—to compare human intelligence to artificial intelligence, it may be worth noting that many of those skills that computers must 'learn' in order to compose are parallel to skills that humans must develop to do likewise. In Chapter 1, it was noted that extemporaneous music generation requires:

> (1) an increase in the memory store of objects, features, and processes—in musical, acoustic, motor (and other) aspect;
>
> (2) an increase in accessibility of this memory store due to the build-up of redundant relationships between its constituents and the aggregation of these constituents into larger cognitive assemblies;
>
> (3) an increasingly refined attunement to subtle and contextually relevant perceptual information.[36]

The value of developing discernment was mentioned in Chapter 2:

> If a problem is defined in terms of an obstacle between one's self and a goal, then much of activity of artists could be called problem solving. They may be solving the problem of finding a means to best express an idea or refine a technique. … This… is often described as *problem finding*.[37]

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[36] Pressing, 166.

[37] Runco, 15.

Furthermore, the necessity of expertise and knowledge was discussed in Chapter 3. It is only by the accumulation of knowledge that the "discovery of the applicability of an existing schema in a new situation" can be realized.

Despite the steadily-increasing body of creativity research, the pedagogy of composition in the first part of the twenty-first century continues to be affected in many ways by the mystification of the creative process during the nineteenth century. The institutional separation of Composition from Music Theory has fundamentally changed post-secondary music education in ways that affect every domain of music from composition to performance, *praxis* to *theoria*, etc. At the same time, earlier modes of composition pedagogy have been in many respects validated by more recent findings in cognitive research. It is with this preceding historical narrative and commentary (Part I) in mind that an integration of historical teaching approaches with recent creativity research is proposed in order to develop appropriate models for Music Theory and Composition Pedagogy in Part II.

Part II

A Philosophy and Guide of Music Composition Pedagogy

Chapter 5

Creativity in Music Theory: Composition as Music Theory Pedagogy

There are two general tactics that immediately come to mind by which the twentieth-century divide between Music Theory and Composition in post-secondary education may be ameliorated: 1) alter the pedagogy of Music Theory or 2) alter the pedagogy of Composition. The most thorough solution would probably include at least some change from both directions. However, it should be noted that the deeper understanding and appreciation of music that comes through the technical exercises and focused analysis of modern Music Theory pedagogy is a useful end apart from composition (or any other practical application, for that matter). Also, the implementation of individually-specialized courses—e.g., counterpoint, orchestration, etc.—has been a realistically usable model, able to support the vast body of accumulated musical knowledge in the domain of Music Theory. In these respects, the current models of Music Theory pedagogy are in many ways well-situated for the instruction of music students across the various musical disciplines. That said, a consideration of this divide and its implications may yield useful recommendations for change.

5.1. The Place of Composition in Music Theory Pedagogy

It must be kept in mind that trying to identify a unified goal for all of Music Theory would be a futile task. Thomas Christensen described three basic traditions of music theory first suggested by Carl Dahlhaus[1]:

> The "speculative" tradition [Dahlhaus] characterizes as the "ontological contemplation of tone systems." This would encompass, then, not only the traditional programs of classical harmonics and canonics but much research in the areas of acoustics and tuning theory during the seventeenth and eighteenth centuries and tone psychology in the nineteenth and twentieth centuries. The second "practical" tradition is characterized by Dahlhaus as the "regulation" and "coordination" of these tone systems applied to compositional practice. As a regulatory discipline, such music "theory" seeks to draw from practice normative rules of syntax and models of structure, while at the same time disciplining that practice through pedagogical strictures. Here we would have an even more expansive category of pedagogical writings crossing the centuries and touching on just about every parameter of music: counterpoint, harmony, rhythm, meter, melody, form, genre, and style. Dahlhaus adds a third theoretical tradition to his outline, one that really only rose to prominence in the nineteenth century…: music analysis. Here, the music analyst studies individual musical works not so much to derive normative patterns of compositional practice, as to gain understanding of the individuating particulars of the artwork.[2]

In this classification can be discerned the earliest divisions of musical knowledge into *theoria* and *praxis* as "speculative" and "practical" traditions, respectively. However, the "practical" tradition notably was transferred from composition pedagogy to Music Theory pedagogy during the eighteenth and nineteenth century when its study no longer

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[1] See Carl Dahlhaus, *Die Musicktheorie im 18. Und 19. Jahrhundert: Grundzüge einer Systematik* (Darmstadt: Wissenschaftliche Buchgesellschaft, 1984), 6–9.

[2] Thomas Street Christensen, Introduction, *The Cambridge History of Western Music Theory*, ed. Thomas Street Christensen (New York: Cambridge UP, 2002), 13–4.

seemed suited to the contemporary study of Composition. With the yet further addition of the "analytical" tradition near the end of the nineteenth century, Music Theory became a rather wide field of study.

Given that a unified goal across the vast field of Music Theory is impossible to discern, it is perhaps ineluctable that a singular vision for Music Theory pedagogy would be similarly elusive. In his seminal book on Music Theory pedagogy, *Teaching Approaches in Music Theory* (2004), Michael Rogers noted:

> Every college theory teacher in the country has an opinion—or should have—about why it is taught or even what it is. These opinions vary tremendously from school to school and sometimes from individual to individual within the same department. This is not necessarily cause for alarm but is rather a measure of the diversity and richness of the discipline.[3]

Yet, it must be kept in mind that the opinions of individuals and departments impact everything about the teaching of Music Theory from the specific material and the mode of practice or evaluation to the overarching course objectives and curriculum design for an entire music department.

Considering the wide possibility for differences across the entire domain of Music Theory or Music Theory pedagogy, Rogers warns that "all aspects of theory teaching… should be patterned by design and not by chance."[4] Specifically, Rogers discusses four issues related to the teaching of Music Theory:

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[3] Michael R. Rogers, *Teaching Approaches in Music Theory: An Overview of Pedagogical Philosophies*, 2nd ed. (Carbondale: SIU P, 2004), 3.

[4] M. Rogers, 15.

1. *Integration vs. Separation*: "The proper relationship of thinking and listening activities in the design of an undergraduate theory program."[5]

2. *Comprehensive Musicianship vs. Isolation*: "A curricular arrangement that attempts to include and interrelate… subjects that otherwise might be taught more conventionally as isolated courses."[6]

3. *Historical vs. Astylistic Approaches*: "First, should a theory curriculum that compares historical style periods make use of a chronological or non-chronological ordering? And second, should the differences among style periods even be stressed at all or should more universal principles applicable to all music be taught?"[7]

4. *Concepts vs. Skills*: "A final brief comparison in teaching philosophies attempts to distinguish between curriculums that stress speculative thinking and those that highlight practical application of knowledge."[8]

Rogers summarizes with a caution:

> These pairings, in a way, have presented false issues by suggesting that choices rather than blendings are required in theory teaching.… It seems to me, though, that many of the values of these approaches are not contradictory at all (as implied by the use of "vs.") but rather complementary.[9]

Whether consciously or unconsciously, each teacher and department will make decisions about each of these issues. Ideally, such choices are made with some goal in mind.

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[5] M. Rogers, 16.

[6] M. Rogers, 20.

[7] M. Rogers, 25.

[8] M. Rogers, 27.

[9] M. Rogers, 29.

The place of composition in Music Theory can be described according to the framework developed by Rogers. Composition can be described as a skill (on the "Concepts vs. Skills" issue) that can be incorporated into Music Theory as a part of Comprehensive Musicianship (rather than in "isolation" from Music Theory). As a skill, composition practice can be employed in Music Theory in order to develop a better understanding of the concepts. In this sense, the two activities feed on each other:

1. Increased understanding of concepts can lead to more well honed ability.
2. Increased ability can lead to clearer appreciation and understanding of concepts.

Neither skill- or concept-acquisition will be fully effective apart from the other. Rather, it is through the careful coordination and balance of the two that students can gain the most from studies in Music Theory.

Comprehensive Musicianship arose as a pedagogical model in response to the specialization and separation of music courses in post-secondary education during the twentieth century. Recommendations for such a program were nationally introduced by the Contemporary Music Project of the Music Educators National Conference in 1965:

- The content and orientation of musicianship training should serve all music degree students regardless of their eventual specialization.
- Comprehensive musicianship training incorporates conceptual knowledge with technical skills to develop the capacity to experience fully and the ability to communicate the content of a musical work.
- The courses in musicianship training should be designed to synthesize knowledge acquired in all other musical studies.

- Musicianship courses should be considered as evolving and open-ended disciplines. The student must be given the means to seek and deal with materials outside and beyond his formal education in music.

- The relevance of musicianship training to professional studies should be made clear to the student. The clarity of purpose may be achieved if musicianship training is based on the student's own musical development and expressive needs.

- Courses constituting comprehensive musicianship training are directly related to each other. The study of any specific subject matter need not be confined to a course but approached in several ways in other complementary disciplines.[10]

In the Comprehensive Musicianship model, composition exercises can be a useful way to make connections between models and real music in any and every type of Music Theory course, such as Harmony, counterpoint, orchestration and the like. However, such a comprehensive approach must also be balanced with some degree of isolation so as to not favor making a particular course overly broad and thereby sacrificing its depth.

Ultimately, the decision to employ composition exercises in the various courses that make up the field of Music Theory would ideally be made by teachers who do so with purpose and intent. Music educator Ian Polster has described the task of a Music Theory teacher well:

> If one were to ask any number of people to state the purpose of an education, the answers, though varied, would express the concept that an education prepares the individual for something he will do after his education is completed. I make a subtle switch by saying: I do not educate the individual in order that he might do a

[10] Contemporary Music Project, *Comprehensive Musicianship: The Foundation for College Education in Music* (Washington, D.C.: CMP/MENC, 1965), 21.

particular thing, I have him do a particular thing in order that he might become educated.[11]

5.2. Music Theory as Composition

While it is fairly common for a Harmony or counterpoint textbook to include some manner of composition exercises, relatively few pedagogical models for the use of composition in the teaching of Music Theory have been described. One of the earliest such pedagogical methods was articulated by Thomas Benjamin in the *Journal of Music Theory Pedagogy* in 1989.[12] He suggested that Music Theory can—indeed, should—be taught as the "doing" of music in order to engage the students in the classroom by relating the concepts to real music-making. Benjamin's pedagogical method comprised two important components: 1) sequenced problems from most to least restrictive (e.g., see Figure 5.1); and 2) in-class modeling of compositional problem-solving. This instructional method is particularly useful in its flexibility and may be tailored to any given course, topic or student group.

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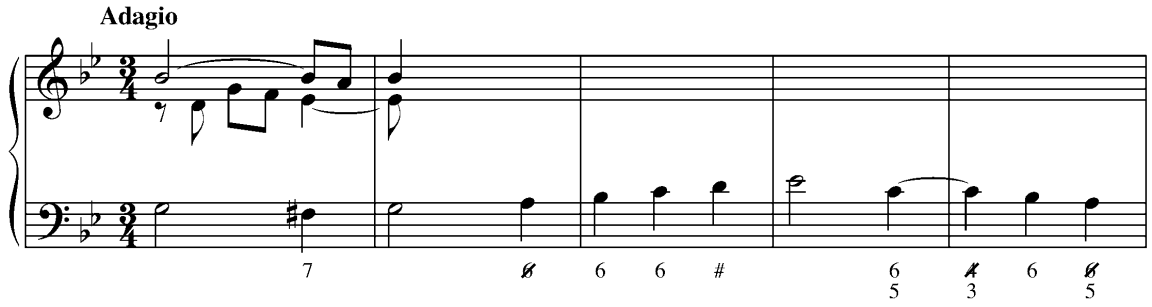
[11] Ian Polster, "Theory Preparation for Future Teachers: Process vs. Information" (paper presented at Michigan Conference of Music Theory, Ann Arbor, October 1975): 8, quoted in Rogers, *Teaching Approaches in Music Theory*, 28–9.

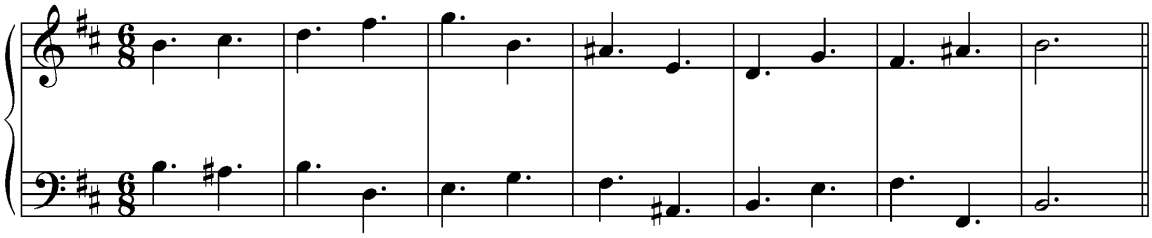
[12] Thomas Benjamin, "Teaching Theory as Composition," *Journal of Music Theory Pedagogy* 3.2 (1989): 189–203.

a. A tightly-structured exercise.



b. A part-writing framework.

> Articulate the… framework, mainly in eighth notes. Be attentive to motifs, rhythmic continuity and nonharmonic activity.



c. A free-composition assignment.

> Compose a work for any instrumental combination available to \you during the class meeting time. Use only the technical vocabulary discussed thus far in the course. The overall formal structure may be assigned or may be freely chosen.

Figure 5.1. Examples of composition 'problems' from most to least restrictive (a–c).[13]

Modeling is paramount in the contemporary instructional-design theory of Model-centered Instruction, originally developed by instructional psychologist Andrew Gibbons:

[13] Benjamin, 191–7.

> The central premise of model-centered instruction is that the most effective and efficient instruction takes place through experiencing realia or models in the presence of a variety of instructional augmentations designed to facilitate learning from the experience.[14]

Gibbons provides the principles of model-centered instruction:

1. *Experience*: Learners should be given maximum opportunity to interact for learning purposes with one or more systems or models of systems of three types: environment, system, and/or expert performance.

2. *Problem-solving*: Interaction with systems or models should be focused by the solution of one or more carefully selected problems, expressed in terms of the model, with solutions being performed by the learner, by a peer, or by an expert.

3. *Denaturing*: Models are necessarily denatured from the real by the medium in which they are expressed. Designers must select a level of denaturing matching the target learner's existing knowledge and goals.

4. *Sequence*: Problems should be arranged in a carefully constructed sequence for modeled solution or for active learner solution.

5. *Goal orientation*: Problems selected should be appropriate for the attainment of specific instructional goals.

6. *Resourcing*: The learner should be given problem solving information resources, materials, and tools within a solution environment (which may exist only in the learner's mind) commensurate with instructional goals and existing levels of knowledge.

7. *Instructional augmentation*: The learner should be given support during solving in the form of dynamic, specialized, designed instructional augmentations.[15]

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[14] Andrew S. Gibbons, "Model-Centered Instruction," *Journal of Structural Learning and Intelligent Systems* 14.4 (2001): 511–2.

[15] Gibbons, 514.

The perspective of model-centered instruction can be useful in the interpretation of traditional teaching methods (e.g., "lecturing" is maximally-denatured model-related information in verbal form) or in the design of optimal instructional methods.

Of special importance to model-centered instruction is the proper sequencing of problems. The use of incremental external models can facilitate the development of internal models that students can employ in future circumstances beyond the learning environment.[16] Conversely, improper sequencing or misleading models had negative effects on future learning. Instructional design for complex tasks is complicated by the potential for interrelationships among sub-skills.[17] When focusing on a given sub-skill of a complex task, the remaining skills must be performed in some initially simplified manner. This allows for students to become aware of important interrelations between sub-skills while focusing on the development of each one in turn.

5.3. Implementing Composition in Music Theory

As an overarching design theory, the principles of model-centered instruction are particularly suitable for such problem-based activities as composition. Nevertheless, the particular implementation of composition activities in Music Theory poses several challenges, including such considerations as the size of the class and the available time.

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[16] See Barbara White and John Frederiksen, "Causal Model Progressions as a Foundation for Intelligent Learning Environments," *Artificial Intelligence* 42.1 (1990): 99–157.

[17] See Richard R. Burton and John Seely Brown, "Skiing as a Model of Instruction," *Everyday Cognition: Its Development in Social Context*, ed. Barbara Rogoff and Jean Lave (Cambridge, MA: Harvard UP, 1984), 139–50.

The amount of time allotted to any given topic may at times hardly allow for thorough explanation or examination that adding composition may seem daunting. Furthermore, the invaluable experience for students of live performances will likely necessitate the marking off of an additional day. Assuming that the value of such activities is perceived by those responsible for course design, the useful implementation of composition projects into the instruction of Music Theory must take into careful consideration problem design and sequence.

A practical experiment with teaching Music Theory through composition was described by Sylvia Parker in the *Journal of Music Theory Pedagogy*: "Understanding Sonata Form through Model Composition."[18] Parker's design took into consideration the limited time available in an intermediary undergraduate theory course:

1. Choose principal and secondary themes from your sight singing text.…
2. Transpose the themes to appropriate keys for both exposition and recapitulation.
3. Provide accompaniments in classical piano style.
4. Compose transitions for exposition and recapitulation. These should sound the same although they serve different modulatory functions. They may be dependent or independent.
5. Compose a development:
    a. Label the thematic material in the exposition that you are developing.
    b. Begin in the key in which the exposition ended.
    c. Modulate to at least three different keys.
    d. End the development on a prolonged dominant harmony (i.e., the dominant preparation for the recapitulation).[19]

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[18] Sylvia Parker, "Understanding Sonata Form through Model Composition," *Journal of Music Theory Pedagogy* 20 (2006): 119–137.

[19] Parker, 124.

By using pre-composed melodies, the compositional problem is limited to and focused on the composition of accompaniments, transitions and developments. Parker also noted that classical-style piano accompaniments would have been studied by this point in the theory curriculum, further limiting the problems to be solved. Similarly limited compositional problems are often articulated in theory texts as homework assignments and even provide the entire basis for Nicholas Cook's (b. 1950) *Analysis through Composition* (1996).[20]

The proper sequencing of problems according to Gibbons' theory of model-centered instruction suggests that exercises should progress from natural to denatured as they also become increasingly sophisticated. The problem posed by Parker's sonata form project is fairly denatured in that it describes an overall musical process in an entirely verbal way. Many texts will include exercises for each unit that range from natural to denatured, much like those illustrated by Benjamin in Figure 5.1. If correct internal models are formed as students work through natural exercises in the earlier stages, denatured problems should be sufficient for later stages. Ideally, each particular music department would be sufficiently coordinated such that students progress through these stages at the same rate. In a less-coordinated circumstance, more natural models may be necessary to accommodate those students who have had less practice. The latter scenario will become increasingly apparent in upper-level theory courses—e.g., counterpoint, orchestration, etc.—when the disparity may make such projects less fruitful for the meeting of course objectives.

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[20] Nicholas Cook, *Analysis through Composition: Principles of the Classical Style* (New York: Oxford UP, 1996).

Regardless of the particular problem or the extent to which it has been denatured, instructors must implement compositional activities in the design of one or more of three types of models: environments, systems or expert performance. The homework exercises found in most texts are generally of the environmental or system variety. They create some environment of restrictions (e.g., composing within a given style) or system of abstractions (e.g., voice-leading paradigms) within which the student must navigate and learn from interactions with the imposed and natural limitations. For example, Parker discovered that:

> Students, predisposed to think of sonata as a long piece, initially chose the longest melodies they could find. They quickly realized, however, that longer melodies often contain internal modulations that would frustrate the harmonic objectives of their sonata-allegro. This in itself was a valuable lesson.[21]

When students do not independently find the boundaries in the model, the instructor will typically facilitate the recognition of the natural or imposed limitations through one-on-one consultations or the eventual assignment of grades.

The modeling of expert performance in composition may be the most underutilized or misunderstood instructional tool available to the instructor of Music Theory, particularly for those with modest compositional experience. Such modeling of expert behavior may be the oldest, most natural and most widely-used method of learning and is typically associated with apprenticeships (including early approaches to music

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[21] Parker, 125.

education).[22] Students learn by observing an expert interact with an environment defined by a given problem. Moreover, the 'expert' performance need not be perfect; even erroneous interaction with the environment can facilitate learning.[23] However, the expert would ideally be able to identify and represent to students the otherwise hidden cognitive processes through verbal communication.[24]

Rather than modeling compositional activities as a prelude to composition assignments, theory instructors and textbook-authors have a proclivity to model analytical activities. Returning to Parker's exercise as an example:

> Students also came to understand the advantage of maintaining a repeating pattern in their accompaniments. They had earlier analyzed Mozart's repetition of patterns across phrases, and had also practiced accompanying folk melodies with repeated patterns in their piano classes. But now with pencil in hand, some students felt that they were not really composing, not really doing enough, unless they changed patterns frequently.[25]

While Mozart's music may be a type of model, its use as an instructional model can only serve analysis (unless early drafts or notes are available). When instructors analyze a pre-existing piece of music for students, they are modeling analysis. In order to model composition, instructors must place themselves within the environment of a

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[22] See Albert Bandura, *Social Learning Theory* (Englewood Cliffs, NJ: Prentice, 1977).

[23] Gibbons, 522.

[24] See Allan Collins, John Seely Brown and Susan E. Newman, "Cognitive Apprenticeship: Teaching the Craft of Reading, Writing and Mathematics," *Knowing, learning and Instruction: Essays in Honor of Robert Glaser*, ed., Lauren B. Resnick (Hillsdale, NJ: Erlbaum, 1989), 453–94.

[25] Parker, 125.

compositional problem and verbalize the cognitive process by which they make decisions. As noted, instructors need not be flawless in the decision-making process; rather, students will learn from merely observing the interaction instructors face within the environment of solving compositional problems.

5.4. Creativity in Music Theory

Teaching Music Theory through composition presents a unique problem with respect to the creative freedom of students. Parker's students "felt that they were not really composing" without employing constant variation in their compositions. Instructors must somehow balance the extent to which the compositional exercises are restrictive or permissive.

In order to select a proper level of restrictiveness or permissiveness for a particular compositional problem, theory instructors must keep in mind the objective that compositional activity is intended to achieve. Given that much of Music Theory is concerned with music of the past (including the recent past), many compositional projects will be designed to help students better understand the music under observation. In these cases, a high level of restrictiveness will help students better appreciate various features of a given style as they interact with its boundaries. Conversely, a high level of permissiveness may result in the construction of erroneous internal models that will be more difficult to correct once in place. That said, other components of Music Theory pedagogy that can more generally serve the practice of composition (e.g., the study of

motivic manipulation) can allow for greater levels of permissiveness in order to allow students to develop fluent divergency.

Part of the difficulty of employing compositional activities in the pedagogy of Music Theory is overcoming common preconceptions about originality with respect to creativity. If something must be completely unlike anything that has preceded it in order to be considered original, then most of what is deemed to be great music should be reclassified as derivative. In reality, much of composition pedagogy before the nineteenth century involved the learning of common patterns to be used for new compositions. In this sense, *originality* can also refer to novel combinations of preconceived materials or ideas. Some have even argued that no ideas are truly novel, but that we merely adapt old ideas into seemingly new ones.[26] Cognitive psychologist Hans Welling has noted:

> A creative cognitive operation that is often mentioned in the literature on creativity might be identified as *application*: the adaptive use of existing knowledge in its habitual context.… This operation consists of the creative adaptation of existing conceptual structures to fit normally occurring variations.[27]

It is precisely through the application of restrictive concepts of Music Theory to compositional activities that students are able to become more aware of the boundaries inherent to the environment or system of a given compositional problem.

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[26] See Carl R. Hausman, *Metaphor and Art: Interactionism and Reference in the Verbal and Nonverbal Arts* (New York: Cambridge UP, 1989).

[27] Hans Welling, "Four Mental Operations in Creative Cognition: The Importance of Abstraction," *Creativity Research Journal* 19.2/3 (2007): 167.

5.5. Summary

While technical exercises and analytical activities are invaluable components of studies in Music Theory, the reintegration of compositional activities through practical application can increase student understanding and appreciation of musical concepts. If an instructor or—more ideally—a department of Music Theory can agree on the value of such activities, careful implementation of compositional problems through the principles of model-centered instruction can yield in students the development of valuable internal models that facilitate further learning.

The pedagogical design of compositional projects to advance understanding in Music Theory must take into consideration two key variables: problem sequencing and model design. Ideally, problems would progress from natural to denatured and simple to advanced, although not necessarily at the same rate. Increased coordination among faculty can allow for a smoother transition from natural to denatured, whereas the rate of conceptual advancement is unlikely to be alterable given the limited course load that can be fit into any particular degree program. Concurrently, students should experience a variety of model designs that include environments, systems and expert performances. It is particularly the modeling of expert performance that could allow for growth in the area of Music Theory pedagogy as students observe an instructor interact within a compositional environment rather than merely relying on analysis to transfer to practice.

The extent to which compositional activities are permissible or restrictive should reflect the goal or objective for which the problem is designed. Much of Music Theory is involved with music of the past and would therefore be served by high levels of

restrictiveness that allow students to interact with the boundaries of a given style environment or conceptual system. That said, other components of Music Theory may more directly serve the practical study of Composition. In this case, those design principles related to more restrictive problems are still valid, but more permissiveness is necessary for students to gain fluent divergency. Consequently, it may be worth considering those ways in which studies in Composition may be influenced by the technical activities of Music Theory. It is with this subject that the next two chapters are concerned.

Chapter 6

Pedagogical Philosophy for Composition: Integration of Technique and Creativity

> Perhaps the best place to start is by determining present goals and objectives for student competence in composition and improvisation—in other words, starting with the *what* and the *why* before proceeding to the *how*.[1]

The specialization of Composition studies as separate from Music Theory has resulted in a sort of practical division between the pedagogy of technique and creativity. Before the twentieth century, technical studies such as counterpoint and Harmony were considered to be necessary prerequisites to the study of composition. As preferences of musical styles changed, however, pedagogues began to question the value of such methods of instruction. The technical studies eventually became relegated to the modern domain of Music Theory. With separate courses designated for the study of Harmony, counterpoint, orchestration, contemporary techniques and technology under the purview of Music Theory, what remained for the specialized study of Composition was the development of creativity. Such is the situation that led Paul Hindemith to lament that "the idea should arise that a composer should not let himself be disturbed by what he has learned in his theory lessons."[2]

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[1] NASM, "Standards—Composition and Improvisation," 2.

[2] Hindemith, 6.

6.1. Learning Objectives

Before examining specific curriculum designs or particular instructional methods, composition teachers should begin by determining goals and objectives for studies in Composition. Renowned educator Ken Bain's fifteen-year study of nearly one hundred of the "best college teachers"[3] showed that "the best teachers ask themselves what they hope students can do intellectually, physically or emotionally by the end of the course and why those abilities are important."[4] The learning objectives identified by these teachers answer such questions as "What does this fact help you understand? What problems does it help you address?"[5] The "best teachers" believed that "people learn best when they ask an important question that they care about answering, or adopt a goal that they want to reach. If they don't care, they will not try to reconcile, explain, modify or integrate new knowledge with old."[6]

It is worth noting that Bain found that the "best teaching can not be found in particular practices or rules but in the *attitudes* of the teachers… and in their *commitment* to let all policies and practices flow from central learning objectives…."[7] Policies and

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[3] The "best college teachers" are described as those who "achieved remarkable success in helping their students learn in ways that made a sustained substantial and positive influence on how these students think, act and feel." Ken Bain, *What the Best College Teachers Do* (Cambridge, MA: Harvard UP, 2004), 5.

[4] Bain, 95.

[5] Bain, 30.

[6] Bain, 31.

[7] Bain, 78–9.

practices tend to become confused with learning objectives when they are adopted generation after generation without careful examination. Bain cautions teachers:

> The scholarly work on this issue asks not if students can pass our examinations but whether their education has a sustained, substantial, and positive influence on the way they think, act, and feel. Researchers have found that even some "good" students may not progress as much intellectually as we once thought. They have discovered that some people make A's by learning to "plug and chug," memorizing formulae, sticking numbers in the right equation or the right vocabulary into a paper, but understanding little. When the class is over, they quickly forget much of what they learned.… Even when learners have acquired some conceptual understanding of a discipline or field, they are often unable to link that knowledge to real-world situations or problem solving contexts.[8]

It is therefore imperative that teachers consider what specific learning goals they want students to achieve and only then work backwards to figure out what teaching methods would be most likely to achieve the predetermined goals.

The selection of broad learning goals for studies in Composition has been complicated by two factors: 1) the nineteenth-century conception of the artist as a unique 'genius'; and 2) the diverse range of professional activities with which a composer may be professionally engaged. As Henry Ward Beecher quipped, "Every artist dips his brush in his own soul, and paints his own nature into his pictures."[9] If what was required to be an artist was to simply "dip one's brush in one's own soul," then an arts education would indeed be futile. And yet, the diversified modes of expression employed by composers

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[8] Bain, 24.

[9] Henry Ward Beecher, *Proverbs from Plymouth Pulpit: Selected Writings and Sayings of Henry Ward Beecher*, ed. William Drysdale (New York: Appleton, 1887), 229.

must be taken into consideration. No two composers will ever be involved in quite the same balance of activities, which may include film scores, educational music, orchestral commissions and the like. Ideally, the selection of learning goals for composers would intend to prepare students for some diverse range of compositional activities while still allowing for the development of a unique compositional voice.

A sample list of learning objectives for studies in Composition is offered here and will provide the basis for much of the following discussion regarding composition pedagogy:

I. Technical Competencies

A. *Clarity*: Expressing music lucidly with certainty or definiteness that is both easy to hear and intelligible.

B. *Coherency*: Demonstrating orderly, logical and aesthetically consistent relationship of the parts to the whole.

C. *Idiomatic Writing*: Using, containing or denoting expressions that are natural to an instrument/voice.

D. *Orchestration*: Arranging, manipulating or coordinating multiple instruments/voices.

II. Creative Competencies

A. *Conceptual Fluency*: Forming ideas, plans or sets of intentions from original or found sources.

B. *Originality*: Employing a relatively unique, individualized approach.

III. *Self-criticism*: Formulating and expressing a sophisticated judgement regarding one's own work.

6.2. Technical Competencies

Although the technical study of music is often relegated to the domain of Music Theory, compositional practice will always intersect by necessity with certain technical aspects of the aural domain of sound and hearing as well as the practical physical limitations of performance. Students often neglect to transfer much of that which is studied in Music Theory courses to composition because they fail to see how such 'rules' can inform contemporary compositional practice. In part this is due to the fact that it is not always the explicit 'rules' that students can apply to composing, but the implicit features of the physical realm of acoustics or performance that very well may be managed by other 'rules.' As such, it is sometimes precisely through the ability of composers to interact with these limitations that they can demonstrate the most creativity. In this sense, the Technical Competencies suggest a reintegration of Music Theory and Composition in a variety of ways.

The first two competencies of the technical domain, *Clarity* and *Coherency*, are those that may suggest the closest interrelationship to the traditional studies of counterpoint and Harmony, respectively. Students can demonstrate *Clarity* by expressing music lucidly with certainty or definiteness that is both easy to hear and intelligible. One aspect of *Clarity* can be discerned through an examination of the 'rules' of counterpoint. In general, the goal of counterpoint may be described as the facilitation of a listener's

mental construction of two or more independent parts. The restriction against parallel octaves or fifths between two intervals is a common means of dealing with the way that the human brain deals with auditory input. Albert Bregman coined the term *auditory scene analysis* to describe the process by which the human auditory system organizes sound into perceptually meaningful elements.[10] In particular, individual tones are filtered through a *harmonic sieve*[11] such that two harmonic sounds that together exhibit a high level of harmonicity will be perceived as a single auditory image, a phenomenon referred to as *tonal fusion*.[12] By avoiding parallel octaves and fifths, contrapuntists maintain a mental impression of two distinct sound sources.

Coherency is reflected in compositions demonstrating orderly, logical and aesthetically consistent relationship of the parts to the whole. This domain interrelates with traditional studies in Harmony, but is often neglected due to its association with a older styles of music. Composer Tristan Murail (b. 1947) has suggested a renewed focus on harmony and coherency:

> I realize now that, over the years, I have struggled to develop an awareness and an expertise in this domain of harmony that few people have taken the trouble to

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[10] See Albert S. Bregman, *Auditory Scene Analysis: The Perceptual Organization of Sound* (Cambridge, MA: MIT P, 1990).

[11] See Hendrikus Duifhuis, Leonardus F. Willems and Robert Sluyter, "Measurement of Pitch in Speech: An Implementation of Goldstein's Theory of Pitch Perception," *Journal of the Acoustical Society of America* 71 (1982): 1568–80; Michaël T. Scheffers, "Simulation of Auditory Analysis of Pitch: An Elaboration on the DWS Pitch Meter," *Journal of the Acoustical Society of America* 74.6 (1983): 1716–25.

[12] See Lucinda DeWitt and Robert Crowder, "Tonal Fusion of Consonant Musical Intervals: The Oomph in Stumph," *Perception and Psychophysics* 41.1 (1987): 73–84.

> seek. I am very surprised that this harmonic dimension has completely disappeared from composers' preoccupations when, in fact, it is so rich and powerful. I can recall, in the eighties, other composers going so far as to mock me for worrying too much about harmony: this was simply not done. This attitude is reflected in many of my students; their most common deficiency is the lack of harmonic awareness. They write music which may have strong gestures, but which ultimately does not function over time because harmony fails to support the form. Harmony, through its relation to form, gave tonal music its strength; nowadays, it has too often been reduced to a simply decorative function. The mere existence of pitches even seems to be a nuisance for certain composers. I think it is time to reconsider the role of harmony and timbre within formal constructions —and this does not only apply to 'spectral' styles.[13]

Harmony is not the only aspect of music that may contribute to a sense of *Coherency*—rhythm and melody are two such other domains—but it can by no means be ignored.

The latter two competencies of the technical domain, *Idiomatic Writing* and *Orchestration*, are interrelated to courses in Orchestration, although they suggest a slightly different focus from their typical Music Theory counterparts. *Idiomatic Writing* is demonstrated by using, containing or denoting expressions that are natural to an instrument/voice. Similarly, *Orchestration* involves arranging, manipulating or coordinating multiple instruments/voices. Most Orchestration courses require at least a certain amount of memorization of instrument ranges and transpositions. Furthermore, students may be asked to apply this knowledge in the transposition and notation of a given musical line for a particular instrument in an idiomatic way. It is a slightly different matter, however, for a composer to generate an original musical thought that is suitable for that instrument. An analogous difference exists between orchestrating a pre-composed

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[13] Tristan Murail, "After-thoughts," *Contemporary Music Review* 19.3 (2000): 8–9.

passage and generating new material for a given ensemble. This is not to suggest that the abilities of performers can not or should not be stretched in order to produce unique new sound resources. Rather, it is through awareness of what is typical that students can better understand what instruments or ensembles are capable of generating.

These latter two Technical Competencies, *Idiomatic Writing* and *Orchestration*, present an opportunity to examine the differences that will reasonably exist between two teachers. The particular range of instruments or ensembles with which a student is expected to be competent may vary widely. On the one hand, some composers such as Chopin were able to achieve great success by composing almost exclusively for one instrument. However, it should also be noted that his orchestral writing has often received criticism.[14] Also, if a composition student happens to play a non-Western instrument, it might be assumed that this instrument should be included in the list of competencies for this student, but not likely others. It might also be taken into consideration that it continues to become increasingly difficult to have an orchestral piece read, let alone performed. Furthermore, students are increasingly expected to be able to produce sounds electronically for recordings and live productions. Ultimately, such decisions must be made by a given department or instructor.

For the remainder of this discourse on competencies, it will be assumed that students be expected to be able to write idiomatically for the range of Western orchestral instruments and the voice. It will also be assumed that composition students will be able

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[14] For example, see Frederick Niecks, *Frederick Chopin as a Man and Musician* (New York: Cooper Square, 1973).

to orchestrate for standard ensembles (e.g., brass or woodwind quintet, orchestra, concert band, etc.) as well as more recently-established ensembles (e.g., the so-called Pierrot ensemble). Just as a violinist must learn several standard techniques to be able to play a wide range of repertoire, a composer must be expected to be familiar with commonly-available instruments and ensembles with which he or she may be professionally engaged. Assuming that the goal is to prepare students for a wide range of compositional activities that might be anticipated, such a list of competencies is formulated with the intention of keeping the future activities of the students in mind.

6.3. Creative Competencies

Composition is generally categorized as a creative domain, but those ways in which a composer can become more creative are not always clear. By articulating clear learning goals, particular aspects of the students creativity may be addressed more directly. *Creativity* has proven to be a difficult concept to define, and has only been studied in a serious sense since the 1950s.[15] *Creativity* may be suitably described as "minimally… the capacity for, or state of, bringing something into being."[16] Many definitions of *creativity* feature two characteristics: originality and usefulness. While *originality* will have obvious application to composition, *usefulness* may merely be a matter of perspective. For example, if a given musical idea does not solve a problem in

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[15] See Sternberg and Lubart.

[16] Hausman and Rothenberg, 6.

the way in which it is currently defined, it may be just as useful to redefine the problem as it is to toss out the generated idea.

Conceptual Fluency is demonstrated by forming ideas, plans or sets of intentions from original or found sources. It is listed as the first Creative Competency because it may be considered the more general of the two. Divergent thinking has been identified by psychologist J.P. Guilford as one of the key components of creativity.[17] This approach to thinking that focuses on generating many solutions is contrasted with convergent thinking, which focuses on discovering the single 'correct' solution. In general, *Fluency* is the ability to rapidly produce a large number of ideas or solutions. This can be particularly useful to composers that will work on deadlines with numerous commissions or film scoring. Yet, every composer can benefit from increased *Fluency* so as to have more possible solutions to any given musical problem readily available.

Divergent thinking can also be described in terms of originality. *Originality* reflects employing a relatively unique, individualized approach. This is the parameter that may describe the extent to which a composer has 'developed a voice.' It was noted in Chapter 6 that some have argued that no ideas are truly novel.[18] And yet, it may be worth remembering the viewpoint of cognitive psychologist Hans Welling:

> A creative cognitive operation that is often mentioned in the literature on creativity might be identified as *application*: the adaptive use of existing

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[17] J.P. Guilford, *The Nature of Human Intelligence* (New York: McGraw, 1967).

[18] See Hausman.

> knowledge in its habitual context.… This operation consists of the creative adaptation of existing conceptual structures to fit normally occurring variations.[19]

Many, if not all, creative ideas may be understood as the synthesis of previously disconnected ideas. David Cope has suggested that creativity be defined as "the initialization of connections between two or more multifaceted things, ideas, or phenomena hitherto not otherwise considered actively connected."[20] In many senses, this perspective on musical styles can help understand what Stravinsky meant when he noted that "in truth, I should be hard pressed to cite for you a single fact in the history of art that might be qualified as revolutionary. Art is by essence constructive."[21]

6.4. Self-Criticism

The last component of the suggested list of learning objectives for studies in composition is the meta-cognitive domain of self-criticism that requires students to be able to examine their own thinking. *Self-criticism* involves formulating and expressing a sophisticated judgement regarding one's own work. It may be the most significant responsibility of a teacher to prepare students to solve professional problems independently. Cognitive psychologist and creativity specialist Mark Runco describes the

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[19] Welling, 167.

[20] Cope, *Computer Models of Musical Creativity*, 11.

[21] Stravinsky, 15.

situation by noting that students must be able "to make choices and to exercise discretion about when to be original and when to conform."[22]

It should be noted that Composition studies are like many other domains in the humanities in which there is not necessarily a 'right' answer. To suggest that students must learn that one way of composing is inherently 'wrong' or 'right' would merely perpetuate a given style of composing (likely that of the instructor). Rather, students can benefit from the ability to carefully consider what has been accomplished in a given work. Students will want to be able to remember useful solutions that may be reused in future circumstances. Also, if some compositional problem was particularly challenging, its identification can facilitate the discovery of other 'problems' that can help a composer continue to develop past the time of formal education.

6.5. Summary

The development of learning objectives for composition studies is a necessary first step to the future development of composition pedagogy. Many methods of instruction have been developed for the teaching of composition over time, but it is not the case that a given instructional tool will meet a particular learning objective simply because it has worked in the past. Rather, it is through the thoughtful examination of what students should be prepared to do at the end of studies in Composition. It is with this in mind that the following competencies for student composers are proposed: *Clarity*, *Coherency*, *Idiomatic Writing*, *Orchestration*, *Fluency*, *Originality* and *Self-criticism*. It is

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[22] Runco, 207.

not necessary that every teacher of composition agree on the particular learning objectives, but rather that such choices are made with foresight and purpose.

Except for *Self-criticism*, the proposed learning objectives have been categorized into two general categories: Technical and Creative Competencies. This in part reflects the modern division between studies in Music Theory and Composition. In general, the Technical Competencies are those that have been relegated to the modern study of Music Theory whereas the Creative Competencies have been saved for studies in Composition. Furthermore, the Creative Competencies have been separated out in order to examine what specific goals may be identified with respect to the creative aspect of composition. This particular issue was identified by Schoenberg:

> The greatest difficulty for the students is to find out how they could compose without being inspired. The answer is: it is impossible. But as they have to do it, nevertheless, advice has to be given.[23]

It is suggested that an ideal composition curriculum would integrate both the Technical and Creative goals to fully prepare students for future activity as a composer.

It may be worth mentioning at this point that any of the suggested competencies could likely be developed apart from the others. In fact, it may often be the case that the Technical Competencies will develop at a different rate than the Creative Competencies do, simply because they have been partitioned off into the separate domain of Music Theory. Even the somewhat closely related domains of *Idiomatic Writing* and

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[23] Schoenberg, *Fundamentals of Musical Composition*, 215.

Orchestration can develop at different rates, depending on the particular modes of instruction. It is not inherently problematic that any one of these goals be met before or after any of the others. Rather, after learning objectives have been identified, composition teachers must ascertain what can be done to ensure that students meet all of the established learning objectives by the end of their studies. The issue of facilitating students to meet these learning objectives will be addressed in Chapter 7.

Chapter 7

Composition Pedagogy in Practice: Guide to Teaching Composition

It has become increasingly apparent that pedagogy involves more than content. While it may be obvious that the best teachers would be able to do what they expect from their students, Ken Bain's study of the "best" teachers noted that "the quality of knowing a discipline isn't particularly distinctive.… If it were, every great scholar would be a great teacher. But that's not the case." Rather:

> [The "best" teachers] have used their knowledge to develop techniques for grasping fundamental principles and organizing concepts that others can use to begin building their own understanding and abilities. They know how to simplify and clarify complex subjects, to cut to the heart of the matter with provocative insights… [They] have at least an intuitive understanding of human learning akin to the ideas that have been emerging from research in the learning sciences.… While others might be satisfied if students perform well on examinations, the best teachers assume that learning has little meaning unless it produces a sustained and substantial influence on the way people think, act and feel.[1]

While it is important to begin by setting learning objectives, such as those in Chapter 6, pedagogues must also take human cognition and learning into consideration in order to develop proper modes for instruction.

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[1] Bain, 16.

7.1. Duration and Pacing of an Education in Music Composition

One of the significant findings from the scientific study of expertise has been codified as the *Ten-Year Rule*.[2] This is the idea that it takes approximately ten years of deliberate practice and study in order to master any given domain. Such a 'rule' would appear to counter the Romantic idea of the composer as a "genius," and yet it appears to hold true even for creative tasks. Robert Weisberg examined the case of Mozart, the so-called 'child prodigy.'[3] Weisberg found that the quantity and quality of compositional output increased immensely over the course of Mozart's first ten years of composing. Furthermore, the young Mozart is known to have studied for several years under the close tutelage of his father, Leopold. Many of the young Mozart's first published compositions were based on the works by other composers and it is likely that similar exercises took place in his private tutelage.

Given the *Ten-Year Rule*, the contemporary degree-granting model of post-secondary education is an ideal way to facilitate expertise in students. The time it takes to complete a Bachelor's, Master's and Doctor's degree in most institutions would extend a post-secondary education to approximately ten years. While spending ten years of time performing a particular task is not a sufficient condition for expertise, it is at least

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[2] See William G. Chase and Herbert A. Simon, "The Mind's Eye in Chess," *Visual Information Processing; Proceedings*, ed. William G. Chase (New York: Academic P, 1973), 215–82.

[3] See Robert W. Weisberg, "Modes of Expertise in Creative Thinking: Evidence from Case Studies," *The Cambridge Handbook of Expertise and Expert Performance*, ed. K. Anders Ericsson et al. (New York: Cambridge UP, 2006), 761–87.

necessary. Students must also perform deliberate practice for approximately four hours each day in order to develop expertise[4]:

> Unlike play, deliberate practice is not inherently motivating; and unlike work, it does not lead to immediate social and monetary rewards.…
>
> [These] activities are designed to improve specific aspects of performance through repetition and successive refinement.[5]

The combination of deliberate practice over the course of ten years is not only ideal for the development of expertise, but also feasible given institutional educational norms.

The pacing of compositional studies across a ten-year span is an important consideration for the facilitation of student development. It has been discussed in Chapters 1 and 4 how generative music processes require a vast body of stored memory objects and an easy access to these objects for recall.[6] This holds true for both improvisation and composition and is a general feature of creative processes. In this general sense, creativity may be understood as the novel recombination of previously separate ideas. Without having filled the memory store with objects that may be manipulated or recombined, attempts at creativity are essentially futile. It may be worth

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[4] Ericsson and Charness, 741.

[5] Ericsson and Charness, 738.

[6] It should be noted that while children are often considered 'creative,' it may be better to consider youthful art as 'uninhibited.' While some artifacts may seem 'novel,' the results may still be seen as the recombination of a previous store of ideas; children are simply less likely to self-edit. Granted, it may be useful to think of developing a 'child-like view' in order to allow for unencumbered output. However, that should not detract from the importance of developing relevant knowledge available for recall and recombination.

noting that such an experimental composer as John Cage (1912–92) began his instruction for conceptual composition with the study of technical issues. From George Brecht's (1926–2008) *Notebooks,* written during his studies in Cage's New School class, it is apparent that Cage's 'event' scores were the later result of studies in acoustics and perception.[7] Artist Allan Kaprow (1927–2006) noted that "'events' was a word that Cage was using—borrowing from science, from physics."[8]

Given that creative processes require a store of previous knowledge, NASM's recommendations for undergraduate and graduate studies may suggest a suitable pacing for Composition pedagogy. According to NASM, undergraduate composition degrees require:

> Achievement of the highest possible level of skill in the use of basic concepts, tools, techniques, and procedures to develop a composition from concept to finished product. This involves the competency to work with both electronic and acoustic media; work with a variety of forms, styles, and notations; and apply principles of scoring appropriate to particular compositions.[9]

For graduate work:

> The doctoral degree program in composition stresses creative activity emphasizing the development of a personal aesthetic expressible in sound. Competencies also include a broad knowledge of historical and contemporary

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[7] Elizabeth Kotz, "Post-Cagean Aesthetics and the 'Event' Score," *October* 95 (2001): 55–89.

[8] Joan M. Marter and Simon Anderson, eds., *Off Limits: Rutgers University and the Avant Garde, 1957–1963* (Newark, NJ: Rutgers UP, 1999), 132.

[9] NASM, *Handbook*, 88.

> compositional practices, music theory, history and criticism, and creative approaches to relationships of these to the compositional process.[10]

As noted before (Chapter 4), these guidelines suggest that undergraduates should focus on the development of technical ability and that a creative, personal aesthetic should be developed during graduate studies. Yet again, the current model for institutional post-secondary institution provides a feasible framework for developing student ability in a way that matches human learning ability.

With respect to the learning objectives for composition suggested in Chapter 6, the contemporary model of post-secondary education is suitably ideal for developing Technical and Creative Competencies over the course of ten years. By emphasizing Technical components during undergraduate studies, students will build a store of musical ideas and knowledge with which they can further develop Creative components during graduate studies. Even in such a model, it must be remembered that composition is a complex task that requires the simultaneous management and solution of several interrelated problems. This suggests that it would be inappropriate to entirely ignore creativity until graduate studies. Rather, it would be perhaps most useful to develop basic ways of thinking creatively that can facilitate the careful focus necessary to understand and apply the various Technical components in a situated-learning context.

It may be worth noting that not all composition students will intend to pursue a full ten years of study. In such cases, it may initially appear as though it would be most useful to develop technique and creativity simultaneously. However, it must be kept in

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[10] NASM, *Handbook*, 112.

mind that a vast body of relevant knowledge or ideas is necessary for the creative generation of music. It is generally through technical studies that students will develop such a store of ideas. A course in basic composition should therefore focus on the development within the students of a familiarity with musical materials that may be later used for truly novel production. Such an approach also takes into consideration the fact that most flashes of creativity—the 'eureka' moments—will occur long after relevant knowledge is acquired. And yet, such traces of creativity would never occur were the relevant knowledge not first known.

7.2. Compositional Problem Design

When developing instructional tools for the teaching of composition, teachers must first consider the particular learning goals for any given lesson, course or degree. In Chapter 6, four learning goals were identified as Technical Competencies: *Clarity*, *Coherency*, *Idiomatic Writing* and *Orchestration*. It has also been suggested that it may be the most fruitful to focus on these aspects of composition during undergraduate studies. It therefore would be worth considering what sorts of instructional tools could facilitate the development of such competencies in an undergraduate curriculum.

As a complex task of problems to be solved, composition pedagogy can readily be understood under the purview of model-centered instruction or situated learning (introduced in Chapter 5). It was previously noted that:

> The central premise of model-centered instruction is that the most effective and efficient instruction takes place through experiencing realia or models in the

> presence of a variety of instructional augmentations designed to facilitate learning from the experience.[11]

In some respects, composition has been taught throughout all times and in all places in a way that reflects a model-centered perspective. Students have been required to complete some compositional task or solve some denatured musical problem in order to facilitate learning. However, it is not always the case that the problems have been carefully designed or sequenced in order to facilitate the development of helpful mental models.

Ideally, composition instructors would carefully consider the ability of each student for the development of individualized compositional problems for instruction. In this sense, composition textbooks may often be less than ideal considering the lack of coordination with any given student. For example, it may be most useful to begin each student with a compositional problem involving an instrument or voice that is familiar. This would allow the student to focus on developing initial understandings with respect to *Clarity* and *Coherency*. Whereas *Idiomatic Writing* on a variety of instruments is eventually desirable, the initial limitation of variables may prevent the student from becoming overwhelmed. Furthermore, students may develop incorrect models across the multiple domains if they are unable to distinguish precisely what problem it is that they are solving at any given time.

The sequence of compositional problems in instructional design must take a variety of variables regarding student ability into consideration. To develop the Technical

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[11] Gibbons, 511–2.

Competencies in undergraduate composition instruction, teachers may develop problems as follows:

1. Begin with simple textures to develop *Clarity*. Monophonic compositions are ideal in this respect. Then, move toward two-part compositions. Contrapuntal issues will likely come into play in addition to distinguishing melody and accompaniment. Next, employ homophony, another two-part design, although now with a distinct melody and accompaniment. Finally, encourage more polyphonic approaches blended together with those above.
2. The development of *Coherency* may begin with simple formal constructions. First assignments may not even need to be an entire piece, but rather a simple refrain in 'aaba' form. Encourage an awareness of a balance between contrast and similarity. Smaller forms can be grouped into larger segments. These may then be grouped as movements into yet larger pieces. Continue to focus on the awareness of continuity across large spans of time with respect to pitch, rhythm, motive, melody and the like.
3. As a matter of practicality, begin with familiar instruments or voices to develop *Idiomatic Writing*. Focus on identifying how an instrument has been used by composers in the past. Identify some extended techniques. Move to an instrument or voice from another family. Multiple instruments from the same family may be introduced at the same time for comparison. Each instrument need not have its own complete piece, but rather may be examined in a short exercise and returned to at a later time.

4. Begin with traditional ensembles to develop *Orchestration*. Also take into consideration what may be available for performance. First employ smaller ensembles, such as trios or quartets. Work up to full ensembles, such as orchestras and bands. Mixed chamber ensembles provide students with a challenge of exploring timbrel combinations in a variety of contexts, but can be deceptively difficult due to the heightened significance of each representative timbre.

Using such a problem-designing plan, teachers may create projects for any given situation with intentionality and purpose. A sample first project for a composer who plays the violin may be to write a short ternary melody (aba) for a solo violin using a given motive, a limited set of pitch material (e.g., pentatonic, octatonic, modal, etc.) or both. In such a project, the student will focus on the *Coherency* of melodic construction between an initial and contrasting phrase. *Clarity*, *Idiomatic Writing* and *Orchestration* would be somewhat denatured or irrelevant. That is, some *Clarity* would likely come naturally from the monophonic line; the student would likely be familiar with *Idiomatic Writing* for the instrument; and *Orchestration* is a non-issue with respect to a single instrument.

In composition classes with more than one student, the above considerations regarding Technical Competencies may still be employed in a way that reflects the overall class ability. Again, it is unlikely to find a textbook that would be suitably sequenced for a given class. If the student group comprises freshmen with a wide variety of instrument or voice abilities, it may be suitable to begin with a solo piece for each

student's major instrument or voice. This would facilitate instructional focus on a limited amount of information rather than teaching every student how to write for the flute, for example, before they begin a first project. On the other hand, a group of non-majors may be best served by beginning more simply yet with a solo percussion piece with one timbre, such as clapping, so as to remove yet another variable. Regardless of the particular student group, it is imperative that instructors keep in mind what it is they want students to be able to think or do by the time they have completed their studies in composition.

7.3. Defining Problems through Instructional Discourse

It is only with an extremely carefully designed problem-sequence that a student may be able to develop as a composer without the aid of an instructor. In such a case, the student would require enough instruction to know exactly what it is that should be the center of focus in a given project and have sufficient information to be able to self-evaluate and correct. It is precisely in these two areas that teachers can be of most use. It is the role of the teacher to help develop helpful mental models that will facilitate composing beyond a formal education. Educational researcher David Jonassen has described the cognitive tasks that are involved in problem solving:

> First, problem solving requires the mental representation of the problem and its context. That is, human problem solvers construct a mental representation (or mental model) of the problem, known as the *problem space*.… Mental models consist of knowledge about the structure of the problem, knowledge of how to perform tests and other problem-solving activities, the envisionment of the problem and its constituent parts, and knowledge of when and how to use

> procedures.… Second, successful problem solving requires that learners actively manipulate and test their models.

Ultimately, it should be the goal of instructors to make themselves unnecessary for students who can eventually solve problems on their own.

In order for students to understand the particular problems involved with composing, they must be able to understand music in a systematic, regular or orderly way that makes sense of human listening and cognition. In other words, composition teachers must facilitate the development of mental models that essentially have been relegated to the domain of Music Theory. For example, young composers often have difficulties with 'wandering' melodies, that is melodies that have no apparent goal or direction. It is likely that these students have no sense for structurally-located goal tones that may be facilitated through an examination of a Schenkerian perspective of melodic unfolding. This is not necessarily to suggest that students must study and understand Schenker's theories before composing, but rather that this particular feature of a composition may go unnoticed by students if they do not have a useful mental model within which to work.

One of the most straight-forward means of illustrating musical systems is through the analysis of other works. Instruction in Composition can be greatly facilitated by such a Music Theoretic approach in which a particular feature is highlighted across multiple styles and genres. As an example, instructors may examine music with students in order to highlight motivic development. Students are often not aware of how little material is actually used by composers, trying to fit every 'good' idea into a single piece. After having examined several pieces, students will become aware of the problem of making

much music out of little material that may have otherwise remained hidden. It is only when students recognize a problem to be solved that they are motivated to pursue learning. Once they are aware of the problem, instructors can then model how a given motive can be manipulated in a variety of ways. Through the observation of an expert, students will learn various problem solving techniques that can then be reinforced in private practice, as discussed in Chapter 5.

While teachers may be hesitant to focus on Music Theory in Composition studies, it must be kept in mind that "even when learners have acquired some conceptual understanding of a discipline or field, they are often unable to link that knowledge to real-world situations or problem solving contexts."[12] Rather, it is the role of the instructor to help students realize the value of information with respect to solving a problem that seems worthy of solving. Although students often desire to compose, it is not always the case that their desire would transfer to the individual problems associated with composing unless it becomes apparent that such an issue was relevant to successful composition. As teachers help students through analytical tasks, they are developing within students the desire to solve a problem that may have been previously hidden. Once problems are identified, students can work toward developing useful problem-solving techniques and solutions that can be stored in memory for future use.

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[12] Bain, 24.

7.4. Deliberate Practice and the Eighteenth-Century Exercise

One of the challenges of composing is that creative ideas or solutions do not all come at once, and so it may be difficult for students to fill the four hours of daily deliberate practice between lessons that is necessary for expertise. In particular, students may gain little from reworking the same few measures for long stretches of time, especially if they are not clear on how to even define the particular problem at hand. This sort of aimless use of time might be best replaced by other activities designed with specific improvement in mind. K. Anders Ericsson has noted that:

> In almost every domain, methods for instruction and efficient training have developed in parallel with the accumulation of relevant knowledge and techniques.… The training activities are designed to improve specific aspects of performance through repetition and successive refinement.[13]

In the history of music, the eighteenth century stands out as a time during which various exercises were developed for the practice of composition that may be worth reexamining.

The practical exercises developed for counterpoint and thoroughbass have in many ways been maintained in the contemporary context of Music Theory. As examined in Chapter 2, Fux's *Gradus* was employed alongside various thoroughbass texts for the explicit purpose of preparing composers. Such methods continued to be used by composition teachers well into the nineteenth century, notably at the Paris *Conservatoire*. At the turn of the twentieth century, however, composition teachers began to question the

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[13] Ericsson and Charness, 738.

use of such methods to teach composition. It was previously noted that Hindemith believed that:

> In Fux's time, it was possible to get along with the material he worked out. But when the technique of composition developed further, … the teaching of harmonic phenomena and their treatment was set off in a separate field known as Harmony.… In this new procedure, the new progress in composition seemed to have found the education method appropriate to it. But that method soon turned out to be inadequate…. On the other hand, the Fux system has lasted two hundred years and is still passed on from teacher to student almost in its original form—a grotesque state of affairs when one realizes that the practice of composition has long since forsaken the bases of this system.… The want of something more suited to our own problems has long been felt.[14]

Hindemith suggested that composition had "long since forsaken the bases of [Fux's counterpoint]," and therefore no longer found any value in its use toward composition. It is still taught with respect to understanding older styles, but not novel composition.

Hindemith's assessment of Fux's pedagogical technique suggests an association of counterpoint exercises with a style of music that can by no means be considered modern. It is perhaps interesting to consider that many pedagogues throughout the eighteenth and nineteenth century used Fux's method to build "such a firm foundation that [the student] can build upon it whatever he wishes."[15] It is also likely that Fux intended his method to be used to develop a discerning composer rather than develop a particular style, as noted in Chapter 2. The use of counterpoint or thoroughbass exercises throughout this time was never intended to develop a particular style of writing, but rather to develop technical abilities in composition before exploring individual styles.

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[14] Hindemith, 5.

[15] Mizler, 3.

It would be senseless to arbitrarily reinsert counterpoint or thoroughbass exercises into the study of composition unless it served as a means to a learning objective. And yet, it was noted in Chapter 6 that counterpoint and thoroughbass can be associated with the Technical Competencies of *Clarity* and *Coherency*, respectively. Counterpoint exercises can be understood as a means to facilitating a listener's mental construction of two or more independent parts. Similarly, thoroughbass exercises can facilitate awareness of harmonic motion in formal construction. Similarly, a reexamination of rhetorical melodic theories in the analysis of musical form may facilitate student growth in *Clarity* or *Coherency*. There are other ways in which music can be made more clear or coherent, but these particular methods have conveniently isolated features of music that relate to acoustic and cognitive effects of hearing and perception regardless of compositional style. In this sense, it may be worth revisiting these "training activities… designed to improve specific aspects of performance through repetition and successive refinement,"[16] as noted by Ericsson.

Despite the fact that instrumentalists and vocalists regularly practice scale patterns in addition to 'real' music, it is rare that young composers are encouraged to regularly practice compositional technique apart from 'real' music. Instrumentalists can anticipate finding scale fragments in 'real' music that correspond to the refined practiced patterns. Likewise, composers will inevitably encounter compositional problems that correspond to the particular exercises of such technical exercises as counterpoint. Using a previously useful solution in a new context may not seem to require as much 'genius' as deriving

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[16] Ericsson and Charness, 738.

some truly novel solution, which may explain the lack of interest in such studies. As students attempt to be completely original, they will likely find that they are merely duplicating a basic method that has already previously been created or optimized by others.

Given that teachers could save a lot of time and develop a much more efficient compositional education by employing previously proven training activities, it seems as though composition students may benefit from the implementation of various technical exercises that have been otherwise relegated to Music Theory. Instrumental teachers often devote only a fraction of lesson time to technical exercises and it would seem likely that composition instructors could do likewise to realize the benefit involved. If, for example, a student needed to develop *Clarity*, a daily contrapuntal exercise may facilitate the ability to differentiate multiple musical parts. A few minutes spent discussing these at the beginning of a lesson would by no means go to waste if instructors are then able to help students recognize the similarity between the problems in denatured exercises and those in 'real' composition and the corresponding solutions.

7.5. Constructive Criticism and the Lesson

One of the most advantageous aspects of working with a composition instructor who also happens to be a composer is that students can learn by interacting with an expert. As instructors criticize or praise a particular aspect of a student project, the student becomes aware of how an expert composer would face the same compositional problem with which he or she has worked. Not only can this facilitate the identification of

problems, but also the ability to test or criticize a particular solution. The critical evaluation of student work is often the most-utilized component of instructional design for composition instruction, much like an 'editor.'

While criticism of student work can be helpful, students will be unable to develop accurate mental models that can be reutilized if instructors are unable to articulate criticisms as problems to be solved. While it is generally helpful for a student to know that a given ending, for example, is not effective, such criticism does not define the problem at hand in any particularly clear way. Jonassen notes that "it is the mental construction of the problem space that is the most critical for problem solving."[17] Without a clearly defined problem space, it is futile to attempt a solution as a useful solution would likely only result out of luck.

If it is necessary for instructors to be able to clearly define the problem space within which the student works, then it is necessary that instructors be fluent with analytical techniques in addition to composition. Ken Bain's study of the 'best' teachers found that:

> Whether well published or not, … outstanding teachers follow the important intellectual and scientific or artistic developments within their fields, do research, have important original thoughts on their subjects, study carefully and extensively what other people are doing in their fields, often read extensively in other field (sometimes far distant from their own), and take strong interest in the broader issues of their disciplines; the histories, controversies, and epistemological discussion.[18]

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[17] David H. Jonassen, *Learning to Solve Problems: An Instructional Design Guide* (San Francisco, CA: Pfeiffer, 2004), 7.

[18] Bain, 15–6.

It is not merely sufficient to be a great composer to be a great composition teacher. Rather, a deep understanding of music in general and particular is necessary to facilitate student learning.

The problem with instructor criticism that is unclear with respect to problem solving is that the student is generally expected to be able to do something that the instructor cannot do. Bain further explicates the abilities of the 'best' teachers: "In short, they can do intellectually, physically or emotionally what they expect from their students."[19] This should seem obvious given that students study with instructors specifically because they know something worth teaching. Composition instructors should therefore be able to define a problem space if they expect their students to do likewise. This means that it is not merely sufficient to criticize. Rather, instructors must facilitate student awareness of problems.

The constructive criticism that knowledgeable teachers can offer to students is particularly useful as students develop *Self-Criticism*. Essentially, the goal of any education is to make the teacher unnecessary. Students should eventually be able to internalize the relevant problem-finding skills inherent in criticism. As students become aware of the various parameters with which their instructors are concerned, they develop models of finding problems and corresponding solutions. While it would be undesirable to produce compositional automatons, composers must eventually be able to recognize relevant musical problems. Additionally, while composers do not want to write every piece in the exact same way, it would be incredibly impractical to begin each new piece

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[19] Bain, 16.

as if never having composed. Ideally, students would be able to balance facility with known and original solutions in order to function as a self-sufficient composer.

7.6. The Development of Originality and Graduate Studies

Although it may be more useful to focus on the development of Technical Competencies before Creative Competencies in the course of an education in music composition, educational perspectives on creativity must also be taken into consideration from the start of a formal education. Instructional design can have a great impact on student ability to demonstrate creativity. Studies have shown that "approximately 22% of the variation in [divergent thinking] is due to the influence of genes," and yet "family studies… have generally found little evidence for the familial aggregation of creative talent. Consequently, much of this literature concludes that hereditary factors play a minor role at best in the determination of creativity."[20] Rather, much of creative ability comes through environmental factors that can be influenced educationally.

In general, composition teachers must develop an educational setting that is suitable to the development of creativity. One such approach is suggested by Carl Rogers' theory of *unconditional positive regard*.[21] Rogers suggested that individuals who are certain of receiving respect and appreciation will be more likely to be creative or spontaneous. Instructors can also play an important role by modeling creativity in their

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[20] Niels G. Waller et al., "Creativity, Heritability, Familiality: Which Word Does Not Belong?" *Psychological Inquiry* 4.3 (1993): 235.

[21] See Carl R. Rogers, *On Becoming a Person: A Therapist's View of Psychotherapy* (Boston: Houghton, 1995).

interactions with students.[22] In this sense, divergent thinking can be directly modeled or can be indirectly encouraged by discussing creativity as a valuable attribute. Essentially, students should feel comfortable developing an attitude of openness to ideation. According to Costa and McCrae's popular theory of personality,[23] the trait of 'openness to experience' is strongly tied to creativity.[24] Likewise, psychologist Ravenna Helson refers to *openness* as a "cardinal characteristic" for creativity.[25]

Creativity can be developed from the start of an education in music composition apart from the technical demands of actual music composition. The two learning objectives identified in Chapter 6 relating to creativity were *Fluency* and *Originality*. These two domains could easily be developed entirely apart from musical application, which may have its own benefit by integrating previously separate ways of thinking. *Fluency* can be developed by practicing finding as many solutions as possible to any given problem. For example, students may be asked to "list as many uses for a sheet of paper as possible in three minutes." *Originality* can be developed in a similar manner, but will instead focus on novel or unique ideas. Whereas students may initially write

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[22] See Terence L. Belcher, "Modeling Original Divergent Response: An Initial Investigation," *Journal of Educational Psychology* 67.3 (1975): 351–8.

[23] See Robert R. McCrae and Paul T. Costa, Jr., "A Five-Factor Theory of Personality," *Handbook of Personality: Theory and Research*, ed. Lawrence A. Pervin and Oliver P. John (New York: Guilford, 1999), 139–53.

[24] See Robert R. McCrae, "Creativity, Divergent Thinking, and Openness to Experience," *Journal of Personality and Social Psychology* 52.6 (1987): 1258–65.

[25] See Ravenna Helson, "Institute of Personality Assessment and Research," *Encyclopedia of Creativity*, ed. Mark A. Runco and Steven R. Pritzker (San Diego, CA: Academic P, 1999).

responses to the previous question such as “write notes” or “make paper airplanes,” more original answers may suggest the use of the item in a way that it is normatively not used. Following the original exercise, students may rate solutions according to their novelty and attempt to be more original in another round of a similar exercise.

While the various attributes of creativity may be developed apart from musical endeavors, similar activities can be designed around musical activities. In many situations, student composers will focus on the composition of complete pieces rather than the creative possibilities of solving any smaller compositional problem. For example, students can practice *Fluency* by writing as many three-note motives as possible. Initially, students may focus on altering only one parameter, such as pitch. As they continue, they will likely discover a variety of variables that can be modified. Similarly, students may be asked to identify the three most original motives from the previous exercise and try to articulate what it is that makes each motive ‘original.’

As students become more adept with various technical competencies of composition, it may be suitable to devise larger scale creativity-building tasks. For example, students may be asked to write three different and usable transitions between two particular passages of music. While it is often the case that students will rework a section of music until it no longer resembles the original, it is less likely that students take the time to compose three ‘good’ solutions to a particular problem. By identifying multiple usable solutions, students are able to refine their taste and discernment by examining details that may make one solution more desirable than others. This sort of careful attention toward the development of creativity may be difficult for students to

develop as they will initially regret the tossing-out of seemingly 'good' ideas. Instructors can help students see the finely discernible differences that come to the surface when multiple solutions are discovered.

All of this work eventually leads to graduate studies, during which students will likely have sufficient technical ability to develop a unique personal voice. Generally, this may come as a natural result of the integration of the previous listening habits of students. If creativity can be described as the "the initialization of connections between two or more multifaceted things, ideas, or phenomena hitherto not otherwise considered actively connected,"[26] as suggested by Cope, an individual voice may simply be the result of initializing connections between two or more styles, genres, influences and the like that had not previously been combined in the way suggested by the particular listening habits of a student. At this point in an educational career, students should be sufficiently prepared to perform the technical operations necessary to achieve such a newly-defined personal style.

Although an individual voice may often emerge from student composers during graduate studies, some students may benefit from instructional design intended toward the development of a unique style. This particular learning objective may be addressed by two general tactics: 1) enhance the store of musical ideas within the student that may be recombined in creative ways; or 2) develop a more open attitude toward originality in compositional solutions. As previously discussed, a more open attitude can be developed by establishing an environment of unconditional positive regard and modeling of

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[26] Cope, *Computer Models of Musical Creativity*, 11.

divergent thinking. Furthermore, *Originality* may be practiced in a variety of general and musical ways that become increasingly complex in correlation with technical ability.

In order to enhance the available store of musical ideas, students must listen to and analyze a great deal of music. While it is often recognized that jazz improvisers learn a great deal about improvising by listening, it is not always the case that composers recognize the need for listening. Part of the challenge for students is inherent in the misleading idea of the creative—and nearly transcendental—'genius' composer. Composers may sometimes take pride in claiming that they are unique, unlike any other composer. While it is likely true that they have developed a somewhat unique voice, it is nearly impossible that they are completely unlike any other composer. Every composer is influenced by the music to which they listen, consciously or not.

Graduate students may also benefit from the intentional experimentation with some given influence, particularly modern trends in musical composition. By designing compositional projects that require students to explore the boundaries of an unfamiliar domain after having developed various technical competencies, teachers can ensure that students focus on creative development with respect to *Fluency* and *Originality*. Not only will this be a useful task for the development of a unique voice, but students will also become familiar with recent trends and by correlation have access to more material available for storage and recall. Ideally, students would continue to seek out the most recent trends in music long past their educational career in order to facilitate creativity.

7.7. Student Interaction in the Classroom and Studio

Although composition can be effectively taught in both private and collective contexts, it may be worth considering the value of student-student interaction in education. One of the challenges of teaching composition in a post-Romantic era is overcoming the conception of the composer as a 'genius' who functions as a solitary producer of art.[27] Educational psychologist Jerome Bruner noted:

> Social transaction is the fundamental vehicle of education and not, so to speak, solo performance.... Too often, human learning has been depicted in the paradigm of a lone organism pitted against nature—whether in the model of the behaviorist's organism shaping up responses to fit the geometries and probabilities of the world of stimuli, or in the Piagetian model where a lone child struggles singlehandedly to strike some equilibrium between assimilating the world to himself or himself to the world.[28]

Teachers of composition must overcome not only the typical conception of human learning as a solo endeavor, but also the modernistic view of the artist as an individual in order to consider what may be gained by student-student interaction.

Educational philosopher Matthew Lipman's posited the educational model of a "community of inquiry" reflecting Charles Sanders Pierce's idea of a community

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[27] For more on the conception of the artist as an individual in the modernistic period, see Suzi Gablik, *Has Modernism Failed?* (New York: Thames, 2004).

[28] Jerome Bruner, "Vygotsky: A Historical and Conceptual Perspective," *Culture, Communication and Cognition: Vygotskian Perspectives*, ed. James V. Wertsch (New York: Cambridge UP, 1985), 25.

"similarly dedicated to the use of like procedures in pursuit of identical goals."[29] Lipman noted that:

> Where the teacher is looked upon as a font of information and the point at issue in the classroom is a matter of factual knowledge, the practice of turning always to the teacher for reassurance or verification is established. This creates a pattern of teacher-student interchanges that… undermines the notion of community and legitimates instead the notion of teacher as informational authority and students as ignorant learners. In a community of inquiry, on the other hand, teachers and students find themselves together as co-inquirers, and the teacher tries to facilitate this by encouraging student-student as well as teacher-student interchanges.[30]

The challenge of turning a classroom into a community of inquiry is establishing the proper role of an instructor. Lipman continues:

> It should be understood that the teacher, in relinquishing the role of informational authority, does not relinquish the role of instructional authority. That is, the teacher must always take ultimate responsibility for establishing those arrangements that will guide and nudge the class into more and more productive, more and more self-corrective discursive inquiry.[31]

The instructional design of group learning must be as carefully considered as any other mode of instruction. Again, it is critical that teachers make conscious decisions about how they can help students achieve learning goals.

For composers, two communities of inquiry may prove beneficial: 1) other student composers; and 2) performers. When student composers are able to discuss

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[29] Matthew Lipman, *Thinking in Education*, (New York: Cambridge UP, 1991), 15.

[30] Matthew Lipman, *Philosophy Goes to School* (Philadelphia: Temple UP, 1988), 96–7.

[31] Lipman, *Philosophy*, 97.

compositional ideas, challenges or questions with each other, they have the opportunity to see what other composers think about and how they solve problems. Such an arrangement is also ideal for developing collegiality among composers who will eventually be professional colleagues. While a composition class would be one way of developing a community of composers, a regularly-meeting studio could be similarly feasible. In both situations, teachers should focus on guiding the group to achieve various learning goals as they help each other learn. By remaining engaged without becoming overbearing, teachers can help students learn to find and solve problems through peer-modeling.

It is perhaps inevitable that student composers will at some point work with performers, but encouraging such interaction can facilitate learning for both the composer and performer involved. Just as in a composition class, instructors want to carefully guide students to achieve learning goals without maintaining informational authority. As student composers work with performers, they will likely acquire a great deal of useful information that can help develop *Idiomatic Writing* and *Orchestration*. As the performer reads through the music, they can discuss why a particular passage is easy or difficult and perhaps what might be more suitable. Ultimately, hearing a live ensemble is the only way that a student can ascertain whether he or she has successfully orchestrated a given piece. Simultaneously, the student performers will gain more understanding about the composition process and perhaps grow to understand more about performing other new music.

7.8. Evaluation

Making value judgments on student compositions can be extremely difficult, and yet somehow a grade must be assigned at the end of each term. Composer and teacher John Paytner noted:

> We accept without question that a school curriculum must show progression, not only in the program overall but also in the content of each subject. In reality, however, things may not be that simple.… There are different kinds of progression and what would be a reasonable expectation in one area may not be so in another.[32]

Ideally, grades reflect the extent to which students have achieved the predetermined learning goals of a given assignment, course or degree. According to Bain:

> The primary goal [of assessment] is to help students learn to think about their own thinking so they can use the standards of the discipline or profession to recognize shortcomings and correct their reasoning as they go.… Students must meet certain standards of excellence, and while none of those standards are absolute, they are not arbitrary either. Grades represent clearly articulated levels of achievement.[33]

Ultimately, grades should be a way of communicating with students so they can better understand their own learning.

With respect to music composition, a great variety of rather arbitrary modes of assessment could be employed. For example, students could be asked to compose a certain number of measures each week or each term; yet, the number of measures is not

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[32] John Paytner, " Making Progress with Composition," *British Journal of Music Education* 17.1 (2000): 5.

[33] Bain, 160.

likely tied to a learning outcome. Similarly, students may be graded on attendance or number of performances, neither of which reflects learning. On the most extreme end of this scale, grades could be assigned with absolutely no indication as to how they were earned. Students may conjecture that the teacher likes their music or that the class is an 'easy-A.' Without communicating what it is that grades reflect, assessments are arbitrary. Ideally, teachers would determine ahead of time what it is that could be assessed to demonstrate learning.

The list of learning objectives established in Chapter 6 can and should be assessed in ways that communicate to students. Rubrics may be developed with fixed or flexible standards that students can understand. For example, compositions may be assessed each week with the extent to which they have flaws in *Idiomatic Writing*, e.g., 'none,' 'some' or 'several.' Alternatively, goals may be set for each individual situation such as 'increasing clarity by ten percent.' Students may also be assessed on their ability to complete technical exercises, such as species counterpoint. It should be made clear to the students that the purpose of doing such activities is to develop a better sense of *Clarity*, for example. Likewise, creativity may be assesses by practicing and measuring *Fluency* or *Originality* drills or by examining the music directly. Finally, students may be asked to write an analysis of or reflection about their music in order to demonstrate their ability to articulate *Self-criticism*.

It must be kept in mind that progress in the various domains of compositional competencies would likely be gradual over the course of a degree program or educational career. Progress in the Technical Competencies may be expected to develop more rapidly

if it is indeed decided that students focus on these components first during an undergraduate degree. Also, each student may start at a different level or develop at different rates across the various domains. Grades must therefore be treated carefully in order to ensure that learning is achieved over the course of time. As one professor noted in Bain's study, "The quality of the work doesn't change because it is late."[34] What is important is that the work actually be of quality by the end of a course, degree or education. As such, a degree in music composition will therefore reflect that students have achieved some set of predetermined learning goals.

7.9. Summary

After determining desirable learning goals for student composers, teachers can develop instructional tools and methods appropriate to facilitating student learning. Given the history of composition pedagogy in Part I and the suggested list of learning goals from Chapter 6 (*Clarity*, *Coherency*, *Idiomatic Writing*, *Orchestration*, *Fluency*, *Originality* and *Self-criticism*), it becomes apparent that the Technical Competencies of composition have over time become relegated to the domain of Music Theory, apart from Composition. Such courses as those in Orchestration, Counterpoint and Harmony may be suitable for learning an isolated subject, but the act of composing requires the focused integration of nearly every musical domain. Knowing that students are unlikely to transfer knowedge between disciplines without guidance, it is suggested that the technical exercises of Music Theory be considered for reintegration into the study of Composition.

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[34] Bain, 155.

Teachers can facilitate student learning in a more efficient and effective manner by learning more about human cognition and learning. For example, one of the aspects of human learning that has been examined here is the use of deliberate practice through carefully designed exercises in order to encourage expertise. By practicing for several hours each day with directed activities, students can gain facility with some of the basic knowledge and skills necessary to become expert composers. Furthermore, it has been noted that an acquisition of musical ideas and techniques may be a necessary prerequisite to truly creative productivity. It is therefore suggested that composition instructors consider the reintegration of technique and creativity, Music Theory and Composition toward the singular goal of generative processes in music in order to more fully prepare students for future compositional activities. While music composition is thoroughly a creative process, the potential for development through the educational design of technical instruction is immense. As J.S. Bach (1685–1750) remarked:

> To write great music, the musician must make his life a great song.... Ceaseless work, analysis, reflection, writing much, endless self-correction, that is my secret.

References

Aaron, Pietro. *De institutione harmonica libri tres*. Bolgona, 1516.

Albert, Heinrich. *Ander Theil der Arien.* Königsberg, 1643.

Albrechtsberger, Johann George. *Gründliche Answeisung zur Composition… zum Selbstunterrichte*. Leipzig, 1790.

Alia musica. [Late-9th c].

Aristides Quintilianus. *On Music, in Three Books*. Trans. Thomas J. Mathiesen. New Haven: Yale UP, 1983.

Aristotle. *Posterior Analytics*. Trans. Jonathan Barnes. Oxford: Clarendon, 1976.

Aristotle. *Nicomachean Ethics*. Trans. Terence Irwin. Indianapolis: Hackett, 1985.

Augustine. *Divine Providence and the Problem of Evil*. Trans. Robert P. Russell. New York: Helenson, 1942.

Aurelian of Réôme. *Musica disciplina*. [9th c].

Bach, Carl Philipp Emanuel. *Versuch über die wahre Art das Clavier zu spielen*. Berlin, 1762.

Bailey, Derek. *Improvisation: Its Nature and Practice in Music.* New York: Da Capo, 1993.

Bain, Ken. *What the Best College Teachers Do*. Cambridge, MA: Harvard UP, 2004.

Bandura, Albert. *Social Learning Theory*. Englewood Cliffs, NJ: Prentice, 1977.

Beecher, Henry Ward. *Proverbs from Plymouth Pulpit: Selected Writings and Sayings of Henry Ward Beecher*. Ed. William Drysdale. New York: Appleton, 1887.

Belcher, Terence L. "Modeling Original Divergent Response: An Initial Investigation." *Journal of Educational Psychology* 67.3 (1975): 351–8.

Benjamin, Thomas. "Teaching Theory as Composition." *Journal of Music Theory Pedagogy* 3.2 (1989): 189–203.

Bent, Ian. *Analysis*. New York: Norton, 1987.

Berlioz, Hector. *The Memoirs of Hector Berlioz*. Corr. ed. Trans. David Cairns. New York: Norton, 1975.

Bilalić, Merim, Peter McLeod and Fernand Gobet. "Inflexibility of Experts—Reality or Myth? Quantifying the *Einstellung* Effect in Chess Masters." *Cognitive Psychology*, 56.2 (2008): 73–102.

Blackburn, Bonnie J. "On Compositional Process in the Fifteenth Century." *Journal of the American Musicological Society* 40.2 (1987): 210–84.

Bloom, Peter. "Berlioz and the 'Prix de Rome' of 1830." *Journal of the American Musicological Society* 34.2 (1981): 279–304.

Boethius, Anicius Manlius Severinus. *De institutione musica*. Vienna, 1491–2.

Bregman, Albert S. *Auditory Scene Analysis: The Perceptual Organization of Sound*. Cambridge, MA: MIT P, 1990.

Bruner, Jerome. "Vygotsky: A Historical and Conceptual Perspective." *Culture, Communication and Cognition: Vygotskian Perspectives*. Ed. James V. Wertsch. New York: Cambridge UP, 1985. 21–34.

Burton, Richard R. and John Seely Brown. "Skiing as a Model of Instruction." *Everyday Cognition: Its Development in Social Context*. Ed. Barbara Rogoff and Jean Lave. Cambridge, MA: Harvard UP, 1984. 139–50.

Cairns, David. *Berlioz*. London: Deutsch, 1989.

Campion, François. *Traité d'accompagnement et de composition selon la regle des octaves*. Facs. ed. Geneva: Minkoff, 1976.

Charlton, David. "Learning the Past." *Berlioz: Past, Present and Future.* Ed. Peter Bloom. Rochester: U of Rochester P, 2003). 37–46.

Chase, William G. and Herbert A. Simon. "The Mind's Eye in Chess." *Visual Information Processing*. Ed. William G. Chase. New York: Academic P, 1973. 215–82.

Christensen, Thomas Street, ed. *The Cambridge History of Western Music Theory*. New York: Cambridge UP, 2002.

Cleonides. “Harmonic Introduction.” Trans. Oliver W. Strunk. *Strunk’s Source Readings in Music History*. Rev. ed. Ed. Leo Treitler. New York: Norton, 1998. 35–46.

Collins, Allan, John Seely Brown and Susan E. Newman. “Cognitive Apprenticeship: Teaching the Craft of Reading, Writing and Mathematics.” *Knowing, learning and Instruction: Essays in Honor of Robert Glaser*. Ed. Lauren B. Resnick. Hillsdale, NJ: Erlbaum, 1989). 453–94.

Contemporary Music Project. *Comprehensive Musicianship: The Foundation for College Education in Music.* Washington, D.C.: CMP/MENC, 1965.

Cook, Nicholas. *Analysis through Composition: Principles of the Classical Style*. New York: Oxford UP, 1996.

——. “Epistemologies of Music Theory.” Christensen. 78–105.

Cope, David. *Computer Models of Musical Creativity*. Cambridge, MA: MIT P, 2005.

——. *Experiments in Musical Intelligence*. Madison, WI: A-R Editions, 1996.

Couperin, François. *Regle pour l’accompagnement*. Paris, 1717.

Covach, John. “Twelve-tone Theory.” Christensen. 603–27.

Czerny, Carl. *Die Kunst des Vortrags der älteren und neuen Claviercompositionen*. Vienna: Diabelli, 1846.

Dahlhaus, Carl. *Die Musicktheorie im 18. Und 19. Jahrhundert: Grundzüge einer Systematik.* Darmstadt: Wissenschaftliche Buchgesellschaft, 1984.

——. *Esthetics of Music*. Trans. Williams W. Austin. New York: Cambridge UP, 1982.

——. *Realism in Nineteenth-Century Music*. New York: Cambridge UP, 1985.

Dallin, Leon. *Techniques of Twentieth Century Composition*. Dubuque, IA: Brown, 1957.

Daube, Johann Friedrich. *General-Bass in drey Accorden*. Leipzig, 1756.

David, Hans T. and Arthur Mendel, eds. *The Bach Reader: A Life of Johann Sebastian Bach in Letters and Document.* Rev. ed. New York: Norton, 1966.

DeWitt, Lucinda and Robert Crowder. “Tonal Fusion of Consonant Musical Intervals: The Oomph in Stumph.” *Perception and Psychophysics* 41.1 (1987): 73–84.

"Discantus positio vulgaris." Trans. James McKinnon. *Strunk's Source Readings in Music History*. Rev. ed. Ed. Leo Treitler. New York: Norton, 1998. 219–22.

Duifhuis, Hendrikus, Leonardus F. Willems and Robert Sluyter. "Measurement of Pitch in Speech: An Implementation of Goldstein's Theory of Pitch Perception." *Journal of the Acoustical Society of America* 71 (1982): 1568–80.

Ebner, Wolfgang. *Eine Instruction und Unterweisung zum Generalbass.* Frankfurt, 1653.

Ericsson, K. Anders and Neil Charness, "Expert Performance: Its Structure and Acquisition" *American Psychologist* 49.8 (1994): 725–47.

Fantino, Edmund, Beth Jaworski, David Case and Stephanie Stolarz-Fantino. "Rules and Problem Solving: Another Look." *American Journal of Psychology* 116.4 (2003): 613–32.

Ferretti, Paolo Maria. *Estetica gregoriana ossia Trattato delle forme musicali del canto gregoriano.* Rome: Pontificio Istituto di Musica Sacra, 1934.

Freire, Paulo. *Pedagogy of the Oppressed*. Trans. Myra Bergman Ramos. New York: Continuum, 1970.

Fux, Johann Joseph. *The Study of Counterpoint*. Rev. ed. Trans. Alfred Mann. New York: Norton, 1965.

Gablik, Suzi. *Has Modernism Failed?* New York: Thames, 1984.

Gaffurio, Franchinus. *De harmonia musicorum instrumentorum opus*. Milan: Pontanus, 1518.

——. *Practica musice.* Milan: Signerre, 1496.

——. *Theorica musice*. Milan: Mantegatius, 1492.

Galilei, Vincenzo. *Dialogo della musica antica et della moderna.* Florence, 1581.

Gessele, Cynthia M. "The Conservatoire de Musique and National Music Education in France, 1795–1801." *Music and the French Revolution*. Ed. Boyd Malcolm. New York: Cambridge UP, 1992. 191–210.

Gevaert, Francois August. *Histoire et theorie de la musique de l'antiquite.* Ghent, 1881.

Gibbons, Andrew S. "Model-Centered Instruction." *Journal of Structural Learning and Intelligent Systems* 14.4 (2001): 511–40.

Gjerdingen, Robert. *Music in the Galant Style: Being an Essay on Various Schemata Characteristic of Eighteenth-Century Music for Courtly Chambers, Chapels, and Theaters, Including Tasteful Passages of Music Drawn from Most Excellent Chapel Masters in the Employ of Noble and Noteworthy Personages, Said Music All Collected for the Reader's Delectation on the World Wide Web*. New York: Oxford UP, 2007.

Guido of Arrezzo. "Micrologus." Trans. Warren Babb. *Hucbald, Guido and John on Music*. Ed. Claude V. Palisca. New Haven: Yale UP, 1978. 202–8.

Guilford, J.P. "Creativity." *American Psychologist* 5.9 (1950): 444–54.

——. *The Nature of Human Intelligence*. New York: McGraw, 1967.

Hausman, Carl R. and Albert Rothenberg, eds. *The Creativity Question.* Durham, NC: Duke UP, 1976.

Hausman, Carl R. *Metaphor and Art: Interactionism and Reference in the Verbal and Nonverval Arts.* New York: Cambridge UP, 1989.

Heinichen, Johann David. *Der General-Bass in der Composition*. Dresden, 1728.

Helson, Ravenna. "Institute of Personality Assessment and Research." *Encyclopedia of Creativity*. Ed. Mark A. Runco and Steven R. Pritzker. San Diego, CA: Academic P, 1999.

Heusinger, Johann Heinrich Gottlieb. *Handbuch der Aesthetik, oder Grundsätze zur Bearbeitung und Beurtheilung der Werke einer jeden schönen Kunst, als der Poesie, Malerei, Bildhauerkunst, Musik, Mimik, Baukunst, Gartenkunst etc. etc. Für Künstler und Kunstliebhaber*. Gotha: Perthes, 1797.

Hindemith, Paul. *The Craft of Musical Composition*. Vol. 1. Trans. Arthur Mendel. New York: Associated Music, 1942.

Hornby, Emma. "The Transmission of Western Chant in the 8th and 9th Centuries: Evaluating Kenneth Levy's Reading of the Evidence." *Journal of Musicology* 21.3 (2004): 418–57.

Hucbald of Saint-Amand. *Musica*. [Late-9th c].

Indy, Vincent d'. *Cours de composition musicale.* Paris: Durand, 1902.

Isidore of Seville. “Etymologies.” Trans. William Strunk, Jr. and Oliver W. Strunk. *Strunk’s Source Readings in Music History*. Rev. ed. Ed. Leo Treitler. New York: Norton, 1998. 149–55.

Jonassen, David H. *Learning to Solve Problems: An Instructional Design Guide*. San Francisco, CA: Pfeiffer, 2004.

Jung, Carl Gustav. *Psychological Types*. Trans. Helton Godwin Baynes. Ed. R.F.C. Hull. Princeton, NJ: Princeton UP, 1971.

Koch, Heinrich Christoph. *Versuch einer Anleitung zur Composition*. Leipzig, 1782–93.

Kohs, Ellis B. *Musical Composition: Projects in Ways and Means*. Metuchen, NJ: Scarecrow, 1980.

Noss, Luther. *A History of the Yale School of Music 1855–1970.* New Haven, CT: Yale School of Music, 1984.

Lach, Robert. *W. A. Mozart als Theoretiker*. Vienna, 1918.

Lane, David M. and Dean G. Jensen. “Einstellung: Knowledge of the Phenomenon Facilitates Problem Solving.” *Human Factors and Ergonomics Society Annual Meeting Proceedings* 37 (1993): 1277–80.

Lester, Joel, *Compositional Theory in the Eighteenth Century*. Cambridge, MA: Harvard UP, 1992.

Levy, Kenneth and Christian Troelsgård. “Byzantine Chant.” *The New Grove Dictionary of Music and Musicians*, 2nd ed. 2002.

Levy, Kenneth. “On Gregorian Orality.” *Journal of the American Musicological Society* 43.2 (1990): 185–227.

Lipman, Matthew. *Thinking in Education*. New York: Cambridge UP, 1991.

——. *Philosophy Goes to School*. Philadelphia: Temple UP, 1988.

Listenius, Nicolaus. *Musica*. Trans. Albert Seay. Colorado Springs: Colorado College Music, 1975.

Luchins, Abraham S. *Mechanizations in Problem Solving: The Effect of Einstellung*. Evanston, IL: APA, 1942.

Mann, Alfred. “Beethoven’s Contrapuntal Studies with Haydn.” *Musical Quarterly* 56.4 (1970): 711–26.

——. “Haydn’s Elementarbuch: A Document of Classical Counterpoint Instruction.” *Music Forum* 3 (1973): 197–237.

Marter, Joan M. and Simon Anderson, eds. *Off Limits: Rutgers University and the Avant Garde, 1957–1963*. Newark, NJ: Rutgers UP, 1999.

Massip, Catherine. “Berlioz and Early Music.” *Berlioz: Past, Present and Future.* Ed. Peter Bloom. Rochester: U of Rochester P, 2003). 19–33.

Mathiesen, Thomas J. “Harmonia and Ethos in Ancient Greek Music.” *Journal of Musicology* 3.3 (1984): 264–79.

Mattheson, Johann. *Critica Musica*. Hamburg, 1722.

Mattheson, Johann. *Der vollkommene Capellmeister*. Trans. Ernest C. Harriss. Ann Arbor: UMI, 1981.

Mattheson, Johann. *Kleine General-Bass Schule.* Hamburg, 1735.

McCrae, Robert R. “Creativity, Divergent Thinking, and Openness to Experience.” *Journal of Personality and Social Psychology* 52.6 (1987): 1258–65.

McCrae, Robert R. and Paul T. Costa, Jr. “A Five-Factor Theory of Personality.” *Handbook of Personality: Theory and Research*. Ed. Lawrence A. Pervin and Oliver P. John. New York: Guilford, 1999. 139–53.

Mizler, Lorenz. *Gradus ad parnassum.* Leipzig, 1742.

Mozer, Michael C. “Neural Network Music Composition by Prediction: Exploring the benefits of Psychoacoustic Constraints and Multiscale Processing.” *Connection Science* 6.2/3 (1994): 247–80.

Musica Enchiriadis and Scolica Enchiriadis. Trans. Raymond Erickson. Ed. Claude V. Palisca. New Haven: Yale UP, 1995.

Murail, Tristan. “After-thoughts.” *Contemporary Music Review* 19.3 (2000): 5–9.

National Association of Schools of Music. “An Advisory for Music Faculty and Administrators: NASM Standards—Composition and Improvisation.” Reston, VA: NASM, 2007.

——. *Handbook 2009–2010.* Reston, VA: NASM, 2008.

——. "Notes for Music Faculty and Administrators: Standards for Composition/ Improvisation, History/Repertory and Technology in Undergraduate Professional Degrees in Music." Reston, VA: NASM, 2007.

Niecks, Frederick. *Frederick Chopin as a Man and Musician*. New York: Cooper Square, 1973.

Niedt, Friederich Erhardt. *The Musical Guide*. Trans. Pamela Poulin and Irmgard Taylor. New York: Clarendon, 1988.

Outram, Dorinda. *The Enlightenment*. New York: Cambridge UP, 1995.

——. "Vincenzo Galilei's Counterpoint Treatise: A Code for the *Seconda Pratica*." *Journal of the American Musicological Society* 9.2 (1956): 81–96.

Parker, Sylvia. "Understanding Sonata Form through Model Composition." *Journal of Music Theory Pedagogy* 20 (2006): 119–137.

Paytner, John. "Making Progress with Composition." *British Journal of Music Education* 17.1 (2000): 5–31.

Penna, Lorenzo. *Li primi albori musicali*. Bologna, 1684.

Pietzsch, Gerhard. *Die Klassifikation der Musik von Boetius bis Ugolino von Orvieto*. Halle: Niemeyer, 1929.

Polster, Ian. "Theory Preparation for Future Teachers: Process vs. Information." *Michigan Conference of Music Theory*. Ann Arbor. October 1975.

Plato. *Complete Works*. Ed. John M. Cooper. Indianapolis: Hackett, 1997.

Pressing, Jeff. "Improvisation: Methods and Models." *Generative Processes in Music*. Ed. John A. Sloboda. New York: Oxford UP, 1998. 129–78.

Rameau, Jean-Philippe. *Treatise on Harmony*. Trans. Philip Gossett. New York: Dover, 1971.

Riepel, Joseph. *Anfangsgründe zur musicalischen Setzkunst: De rhythmopoeïa, oder von der Tactordnung*. Frankfurt, 1752.

——. *Unentbehrliche Anmerkungen zum Contrapunt.* Augsburg, 1768.

Rogers, Carl R. *On Becoming a Person: A Therapist's View of Psychotherapy*. Boston: Houghton, 1995.

Rogers, Michael R. *Teaching Approaches in Music Theory: An Overview of Pedagogical Philosophies*. 2nd ed. Carbondale, IL: SIU P, 2004.

Rosen, Charles. "The Proper Study of Music," *Perspectives of New Music* 1.1 (1962): 80–8.

Rumelhart, David E. and James L. McClelland. *Parallel Distributed Processing: Explorations in the Microstructure of Cognition*. Cambridge, MA: MIT P, 1986.

Runco, Mark A.. *Creativity: Theories and Themes: Research, Development and Practice*. Boston: Elsevier, 2007.

Russo, William. *Composing Music: A New Approach.* Englewood Cliffs, NJ: Prentice, 1983.

Salzer, Felix and Carl Schachter. *Counterpoint in Composition: The Study of Voice Leading*. New York: Columbia UP, 1989.

Sayle, Charles. *In Praise of Music; an Anthology Prepared by Charles Sayle.* London: Stock, 1897.

Schenker, Heinrich. "A Contribution to the Study of Ornamentation." Trans. by Hedi Siegel. *Music Forum*. Vol. 4. Ed. Felix Salzer. New York: Columbia UP, 1976. 1–139.

——. *Harmony*. Chicago: U of Chicago P, 1954.

——. "Joh. S. Bach: Zwölf kleine Präludien, Nr. 6." *Das Meisterwerk in der Musik* 1 (1925): 101–5.

Scheffers, Michaël T. "Simulation of Auditory Analysis of Pitch: An Elaboration on the DWS Pitch Meter." *Journal of the Acoustical Society of America* 74.6 (1983): 1716–25.

Schiødt, Nanna. "A Computer-Aided Analysis of Thirty-Five Byzantine Hymns." *Studies in Eastern Chant*. Vol. 2. Ed. Miloš Velimirović. New York: Oxford UP, 1971. 129–54.

Schoenberg, Arnold. *Style and Idea: Selected Writings of Arnold Schoenberg*. Ed. Leonard Stein. New York: St. Martin's, 1975.

——. *Fundamentals of Musical Composition*. Ed. Gerald Strang. London: Faber, 1967.

Schubert, Peter. "Counterpoint Pedagogy in the Renaissance." Christensen. 503–33.

Solomon, Jon. “The Seikilos Inscription: A Theoretical Analysis.” *American Journal of Philology* 107.4 (1986): 455–79.

Sternberg, Robert J. and Todd Lubart. “The Concept of Creativity: Prospects and Paradigms.” *Handbook of Creativity*. Ed. Robert J. Sternberg. New York: Cambridge UP, 1999.

St. Lambert. *Les principes du clavecin*. Paris, 1707.

Stäblein, Bruno. “‘Gregorius Praesul,’ der Prolog zum römischen Antiphonale.” *Musik und Verlag: Karl Vötterle zum 65. Geburtstag*. Ed. Richard Baum and Wolfgang Rehm. Kassel, 1968. 537–61.

Stone, Peter Eliot. “Reicha, Antoine.” *The New Grove Dictionary of Music and Musicians*. 2nd ed. 2002.

Stravinsky, Igor. *Poetics of Music in the Form of Six Lesson.* Trans. Arthur Knodel and Ingolf Dahl. Cambridge: Harvard UP, 1947.

Tatarkiewicz, Wladysław. *A History of Six Ideas: An Essay in Aesthetics*. Trans. Christopher Kasparek. Boston: Nijhoff, 1980.

Telemann, Georg Philipp. *Fast allgemeines Evangelisch-Musicalisches Lieder-Buch…* [*mit*] *Unterrichte, der unter andern zur vierstimmigen Composition und zum damit verknüpften General-Basse anleitet.* Hamburg, 1730.

Tinctoris, Johannes. “Liber de arte contrapuncti.” Trans. Gary Tomlinson. *Strunk’s Source Readings in Music History*. Rev. ed. Ed. Leo Treitler. New York: Norton, 1998. 401–7.

Treiber, Johann Philipp. *Der accurate Organist im General-Bass*. Jena, 1704.

Treitler, Leo. “‘Centonate’ Chant: ‘Übles Flickwerk’ or ‘E pluribus unus?’” *Journal of the American Musicological Society* 28.1 (1975): 1–23.

Treitler, Leo. “The ‘Unwritten’ and ‘Written Transmission’ of Medieval Chant and the Start-Up of Musical Notation.” *Journal of Musicology* 10.2 (1992): 131–91.

Thomson, Andrew. *Vincent D’Indy and His World*. New York: Oxford UP, 1996.

Todd, Peter M. and D. Gareth Loy, eds. *Music and Connectionism.* Cambridge, MA: MIT P, 1991.

Türk, Daniel Gottlob. *Kurze Anweisung zum Generalbaßspielen.* Halle, 1791.

Viadana, Lodovico Grossi da. *Cento concerti ecclesiastici… con il basso continuo.* Venice, 1602.

Wallas, Graham. *The Art of Thought*. New York: Harcourt, 1926.

Waller, Niels G., Thomas J. Bouchard, Jr., David T. Lykken, Auke Tellegen and Dawn M. Blacker. "Creativity, Heritability, Familiality: Which Word Does Not Belong?" *Psychological Inquiry* 4.3 (1993): 235–7.

Wason, Robert W. "*Musica Practica*: Music Theory as Pedagogy." Christensen. 46–77.

——. *Viennese Harmonic Theory from Albrechtsberger to Schenker and Schoenberg*. Ann Arbor: UMI, 1985.

Wegman, Rob C. "From Maker to Composer: Improvisation and Musical Authorship in the Low Countries, 1450–1500." *Journal of the American Musicological Society* 49.3 (1996): 409–79.

Weisberg, Robert W. "Modes of Expertise in Creative Thinking: Evidence from Case Studies." *The Cambridge Handbook of Expertise and Expert Performance*. Ed. K. Anders Ericsson, Neil Charness, Paul J. Feltovich and Robert R. Hoffman. New York: Cambridge UP, 2006. 761–87.

Welling, Hans. "Four Mental Operations in Creative Cognition: The Importance of Abstraction." *Creativity Research Journal* 19.2/3 (2007): 163–77.

Wertheimer, Michael. "Max Wertheimer: Modern Cognitive Psychology and the Gestalt Problem." *Portraits of Pioneers in Psychology*. Vol. 1. Ed. Gregory A. Kimble, Michael Wertheimer and Charlotte White. Hillsdale, NJ: Erlbaum, 1991. 189–207.

White, Barbara Y. and John R. Frederiksen. "Causal Model Progressions as a Foundation for Intelligent Learning Environments." *Artificial Intelligence* 42.1 (1990): 99–157.

Wollenberg, Susan. "The Unknown 'Gradus'." *Music and Letters* 51.4 (1970): 423–34.

Zarlino, Gioseffo. *The Art of Counterpoint: Part Three of Le Istitutioni Harmoniche, 1558.* Trans. Guy A. Marco and Claude V. Palisca. New Haven: Yale UP, 1968.