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PROBLEM-SOLVING PEDAGOGY: A FOUNDATION FOR
RESTRUCTURING, UPDATING, AND IMPROVING UNDERGRADUATE
THEORY AND MUSICIANSHIP CURRICULA

A Thesis Presented

by

MICHAEL T. SIMONELLI

Submitted to the Graduate School of the
University of Massachusetts Amherst in partial fulfillment
of the requirements for the degree of

MASTER OF MUSIC

September 2014

The Department of Music and Dance

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DEDICATION

To Rockso.

ACKNOWLEDGMENTS

I would like to thank my advisor, Dr. Gary S. Karpinski, for his help on this project. Thanks also to Dr. Brent Auerbach for his encouragement and advice, and to Jason Hooper for being the gadfly.

ABSTRACT

PROBLEM-SOLVING PEDAGOGY: A FOUNDATION FOR RESTRUCTURING,
UPDATING, AND IMPROVING UNDERGRADUATE THEORY AND
MUSICIANSHIP CURRICULA

SEPTEMBER 2014

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The goal of this thesis is to provide the ideological and practical foundation for an improved approach to undergraduate theory and musicianship pedagogy. I will discuss the structure of conventional theory programs and explore problems inherent to traditional curriculum design. Problem-solving pedagogy, an approach rooted in creative composition and improvisation, will be presented as a complement to traditional theory pedagogy. Balancing problem-solving pedagogy with a more traditional pedagogical approach will provide a practical foundation for improving undergraduate theory and musicianship curricula.

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CHAPTER 1 INTRODUCTION

This thesis provides the ideological and practical foundation for an improved approach to undergraduate theory and musicianship pedagogy. I discuss the structure of conventional theory programs and explore problems inherent to traditional curriculum design. Problem-solving pedagogy, an approach rooted in creative composition and improvisation, is presented as a complement to traditional theory pedagogy. Balancing problem-solving pedagogy alongside traditional pedagogical approaches provides the practical foundation for improving undergraduate theory and musicianship curricula.

I propose a reevaluation of the goals of undergraduate theory and musicianship pedagogy and the extent to which curricula are successful in producing open-minded, adaptive, and versatile 21st-century musicians. One function of this thesis is to provide the perspective for this reevaluation. Currently, there are weaknesses to the prevailing approach to undergraduate theory and musicianship pedagogy. First, curricula often stress content-acquisition over direct contact with musical materials and are too rigid and methodical in their approach. Second, Western music dominates musical examples often at the expense of broader conceptual understanding applicable to all styles and genres. Third, the fragmented presentation of musicianship prevents students from developing a complete sense of musicianship. Last, curricula often fail to address theory from a broad perspective, especially at early stages of training.

The alternate approach presented in this thesis stresses the importance of composition and improvisation as pedagogical tools.¹ Theory curricula are often weighted in the direction of a more regimented approach and often fail to balance this with open-endedness and experimentation.² My goal is not to advocate the replacement of current theory and musicianship pedagogy, but to demonstrate the need for a revised and invigorated approach. This thesis shows how creative composition and improvisation, in the form of problem-solving activities, can play a vital role in undergraduate theory and musicianship education and present a curricular foundation where tradition and innovation can co-exist. Both traditional and problem-solving pedagogies have strengths and weaknesses and a curriculum dominated by either is undesirable; however, in proper balance the two approaches can combine to form highly effective theory curricula tailored to the goals and needs of individual schools.

¹Whereas this thesis focuses on the undergraduate curriculum, many sources used as support focus on musicianship pedagogy involving younger students ranging from elementary through high-school age (Hickey 2003; Auh 1999; Schafer 1976; Paynter 1970; Thomas 1970). I have decided to include these sources because their findings are extensible to undergraduates. Many sources note that the pedagogical fundamentals of my proposed approach to theory and musicianship are consistent despite age level (Regelski 2002; Paynter 1970; Thomas 1970).

²My own experiences as a composer have afforded me ample opportunities to learn music through creative experimentation. For myself, musical understanding was aided and accelerated by time spent composing and improvising, thus enhancing conceptual understanding and allowing me to practice with theoretical concepts and make connections in ways that traditional curricula did not afford. In this way, my theory and musicianship education consisted of two halves: a stricter and more methodical half expressed by traditional theory pedagogy, and a more open-ended and creative half afforded by my experiences as a composer and improviser. Both halves were vital to my musical education. Unfortunately, my experiences as a student were atypical.

CHAPTER 2 CONVENTIONAL THEORY CURRICULA: STRUCTURE AND SHORTCOMINGS

This chapter discusses problems inherent in traditional undergraduate theory and musicianship curricula. Curricula differ substantially among schools. Factors affecting curriculum design include student background and expected prerequisite knowledge upon entry into a program, teacher background and expertise, type of school (i.e., liberal arts, public or private university, community college, conservatory, etc.), budget, goals and flexibility of a department with regards to theory and musicianship pedagogy, and the broader teaching philosophy of the institution as a whole. Despite these differences, most share a similar core structure. The 2013–2014 handbook of the National Association of Schools of Music (NASM) outlines goals for undergraduate theory and musicianship curricula:

Musicianship begins with the acquisition of fundamental competencies such as aural and rhythmic skills, the reading of notation, and the use of musical terminologies. Development then proceeds through constant use and expansion of previously acquired skills. (NASM 2014, 84)

NASM grants schools flexibility in implementing these goals; however, a survey of twenty NASM accredited schools reveals prevailing methods of implementation.¹

Undergraduate theory and musicianship programs begin with studies in rudiments and progress to studies in counterpoint, harmony, form, and analysis. This core sequence often manifests itself in a handful of theory, musicianship, and history courses that are

¹The survey includes the following NASM accredited schools (see works cited): Ithaca College, Syracuse University, Eastman School of Music, Boston University, University of Massachusetts Amherst, New England Conservatory of Music, University of Connecticut, The Hartt School, Los Angeles College of Music, Pepperdine University, Bucknell University, Providence College, University of Portland, Oberlin College, Texas A&M University, University of North Texas, Odessa College, Levine School of Music, George Washington University, and Keene State College. Information on curricula and course offerings were obtained from the schools' websites.

taken in succession. Thus, curricula focus on building tools and skills on which further study of Western music can be built.² Early on, classes function not as ends in themselves, but as part of a bigger picture and a necessary step in achieving competency in Western music. Required studies in aural skills and keyboard skills are usually taught as separate or partial-credit classes.

Curricula focus primarily on music within the Western classical tradition, with an emphasis on tonal music from the common-practice period. Core history requirements often include a multiple-semester survey of the Western musical tradition. For example, many schools offer classes in common-practice literature (ca. 1600–1900), and then offer courses that cover Western music prior to 1600 and 20th-century music. Music outside of the Western classical tradition (e.g., jazz, folk, rock, various music from around the world) is often considered optional and offered in an elective format. Although some schools may require history or theory classes that cover music outside of the common-practice period, curricula do not emphasize skill development needed to critically engage this music in the same way that they provide students the materials and techniques for engaging common-practice literature.

An investigation of some popular theory textbooks and workbooks reveal common day-to-day activities that compose undergraduate curricula.³ Texts typically begin with basic elements of pitch and rhythm (basics of notation, meter, scales, key

²Professors can easily implement regimented curricula and student progress can be monitored very effectively. In this way, the curriculum acts as a series of gradual stepping-stones, focusing student attention on concrete concepts and ensuring the foundation for further learning.

³Popular textbooks and workbooks surveyed include Roig-Francoli's *Harmony in Context* (2011a) and *Workbook and Anthology for use with Harmony in Context* (2011b), Clendinning and Marvin's *The Musician's Guide to Theory and Analysis* (2010a) and *The Musician's Workbook* (2010b), Laitz's *The Complete Musician: An Integrated Approach to Tonal Theory, Analysis, and Listening* (2012a) and *Skills and Musicianship Workbook to Accompany the Complete Musician* (2012b), and Kostka and Payne's *Tonal Harmony* (2009).

signatures, intervals, chords, etc.) and build in complexity to cover more complex harmonic, rhythmic, and formal concepts, often concluding with 20th-century post-tonal techniques. Typically, a solid foundation is established; writing-out, memorizing, playing, singing, and identifying intervals, triads, scales, key signatures, cadences, phrases, Roman numerals, and scale-degree functions. For example, exercises ask students to “Write the correct key signature for each minor key indicated” (Clendinning and Marvin 2010b, 35), or “Write the triads requested below in four parts (SATB)” (109). Texts gradually incorporate part-writing, harmonization of melodies, written counterpoint, and musical analysis. For example, students are given a short melody and are asked to “harmonize the melody below in simple folk style” (156), or to listen to a piece and provide Roman-numeral analysis on a score. Texts often ask these exercises be auralized by playing at the keyboard or primary instrument, or by singing.

Many undergraduate theory and musician workbooks also include opportunities for more open-ended composition and improvisation, as in the following example from Clendinning and Marvin:

Composing your own melody in a major key: Compose a folk-like melody in a major key, using the melodies given above as examples. Notate your tune on a staff, in solfege, or on scale-degree numbers. (Again, rhythm is optional.) Use scale segments where possible, keeping the melody simple enough that you can sing it. As your teacher directs, either turn the melody in or trade it with another student to sing from your notation. (27)

Laitz’s *Skills and Musicianship Workbook to Accompany the Complete Musician* incorporates improvisation and composition by providing concrete materials to be embellished:

Given are two mostly stepwise melodies. Embellish each pitch by adding faster-moving diminutions including passing tones, neighboring tones, and

chordal skips (thirds and fifths). You may wish to combine two of the embellishing types into a more elaborate figure. (Laitz 2012b, 48)

Kostka's *Materials and techniques of 20th Century Music* demonstrates yet another type of activity that focuses on twentieth-century techniques: "Compose a short example in which a Phrygian melody is accompanied by planed triads (diatonic planning)" (Kostka 2006, 96).

These examples illustrate that common theory texts do make an effort to incorporate open-ended exercises similar to those to be prescribed by this thesis. Even so, the prevailing model for undergraduate theory and musicianship curricula does contain a number of weaknesses that could be addressed through a restructured pedagogical approach, and by integrating more problem-solving activities (similar to those exercises described above) into pre-existing curricula. Weaknesses include a content-oriented approach to learning, a focus on methodology over creativity, a reliance on Western literature to teach musical concepts, and fragmentation of musicianship concepts. In addition, curricula focus on detail at the expense of a "big picture." In calling attention to these problems, the goal of this assessment is to demonstrate room for improvement in undergraduate theory and musicianship curricula. This chapter will discuss these issues; in following chapters, solutions to the problems will be presented.

2.1 Content-Oriented Learning

Traditional theory and musicianship curricula focus on teaching students to assimilate fundamental knowledge—essentially the ABC's of Western tonal music—and then building toward words and phrases, grammar, syntax, and finally larger-scale musical forms and structures. Exercises and assignments are concerned with ensuring that

students assimilate vital content for success at later stages in theory curricula, and that students develop the theoretical vocabulary ubiquitous among schools. Theory pedagogy is often less concerned with sound and actual music in the form of sound, as it is with the accumulation of fact-based knowledge (or content), and developing an understanding of terms and concepts through a linguistic/verbal medium (Best 1992). In his 1992 article “Music Curricula in the Future,” Harold Best draws the distinction between thinking “in” music and thinking “about” music. Best writes:

The typical music major is trained to be a combination of observer and presenter. By observer, I mean someone whose main contact with real music largely comprises formulizing and verbalizing **about** music. The hearing that she or he does is more related to **how** music is performed, or **how** its sonic and structural values issue in visual and verbal schemata, than to direct engagement in music **as** music. Students spend far too much time **seeing** intervals, inversions, retrogrades, and forms; **hearing** elaborate lectures **about** scale formations and harmonic processes, and doing **verbal** reports on musical processes. These substitute far too much for the actual musicking of these. (Best 1992, 2; the bold is by Best)

According to Best’s description, the majority of undergraduate theory and musicianship training falls under thinking “about” music.

Consider the following exercise, typical of many theory classes in an undergraduate theory and musicianship curriculum: *Using proper voice-leading, compose a phrase or set of phrases beginning in C and modulating to G major.* This is essentially a written assignment. Students can complete this exercise sitting at a desk using paper and pencil and still earn a high grade. At no point is it guaranteed that they will have picked up an instrument or created sounding music. The exercise demonstrates and tests students’ comprehension of rules governing tonal voice leading, modulation, and cadence, but comprehension is abstract and divorced from sound. Now imagine the same exercise, but restrict students from using paper and pencil. They must complete the

assignment by composing and performing the exercise entirely on their primary instrument. The product of the assignment will be a performance demonstrating “sound” mastery of the material. The same rules apply, but they are no longer abstracted from sound.

Paper-and-pencil assignments exist within the realm of visual and verbal schemata: a step removed from music as sound. Students see the answer rather than hear it —i.e., thinking “about” music. Thinking “in” music, on the other hand, is defined by creative acts, such as composition and improvisation that encourage direct work with sound. Thinking “in” and thinking “about” music are both vital aspects of successful theory and musicianship training; curricula should ideally balance elements of both types of thinking. Even so, this proper balance is usually an exception as curricula typically favor thinking “about” music.

This imbalance is distressing considering the importance many authors place on promoting an atmosphere of “doing” that is conducive to musical behaviors and that gives students the opportunity to work directly with sound (Regelski 2002; Myers and Bowles 1995; Robinson 1997; Rogers 2004; Schafer 1976; Paynter 1970; Thomas 1970). For example, Rogers writes:

Theory is not just something to learn but it is also something *to do*. It represents not just a cluster of answers, but a range of options for thinking about and listening to music. Music theory, in my opinion, is not a *subject* like pharmacy with labels to learn and prescriptions to fill, but is an *activity*—more like composition or performance. (Rogers 2004, 7)

Similarly, Regelski writes that theory classes should become more like “*musicianship laboratories* in exactly the same way that science ‘labs’ in schools are directly exploratory and promote understanding by doing” (Regelski 2002, 3). These labs should

give students ample opportunities to work directly with sound, functioning as a way to turn “learning” into “sound learning” (Regelski 2002; Sarath 1997; Robinson 1997; Thomas 1970).

Undergraduate theory and musicianship training often favors controlled environments over open-ended and practical experiences. Undergraduate training could be improved by providing more opportunities for practical experience; laboratory-like classes that give students opportunities to put knowledge into action. Integrating such labs into undergraduate theory and musicianship curricula would create more opportunities for students to think “in” as well as “about” music. This would effectively balance and improve undergraduate theory and musicianship curricula.

2.2 Methodology Over Creativity

In her 2003 article “Creative Thinking in the Context of Music Composition,” Maud Hickey describes a spectrum of limitations with respect to creative activity. “Closed” musical activities exist on one side of the spectrum, while “open” activities exist on the other side. Figure 2.1 illustrates this spectrum as applied to the idea presented in this thesis. Closed activities limit creativity by restricting student solutions under many parameters. Consider a common undergraduate theory assignment that takes the form of composition; for example, an exercise that asks students to write species counterpoint above a given *cantus*. Implicit in this assignment are a number of restrictions. Student solutions, while unique, exist within a small realm of potential possibilities. Pitch and rhythmic choices are restricted to a small palette. The exercise dictates textural choices for the student. Parameters such as dynamics, articulation, and

to specific tonal and rhythmic palettes. Texture, dynamics, and articulation remain neglected (the framing of counterpoint exercises seldom ever acknowledges the existence of these parameters). These limitations are appropriate considering that the goal of the exercise is to provide a compositional framework that is limited enough to focus learning on the rhythmic and tonal intricacies of a particular stylistic period.

In this respect, closed assignments are effective pedagogical tools within content-oriented curricula. They allow teachers to easily gauge students' assimilation of course material; however, student success in closed assignments is not necessarily indicative of conceptual comprehension in a broader sense (Stephens 2003, 114).

Best writes of closed assignments,

Their equivalence in performance studies would be the reduction of applied music to renditions of its grammars: technical studies and etudes. In the field of sport, this would be like limiting figure skating to the compulsories. (Best 1992, 2)

Though vital to undergraduate theory and musicianship curricula, closed assignments alone cannot support a complete undergraduate theory and musician education. Rogers writes:

The value of results that can be conclusively proven is often overestimated at the expense of the values of speculation, reflection, and contemplative imagination which are, perhaps, more helpful in unveiling novel patterns of thought. These uncharted byways, then, in turn, often lead to still more discovery. Their certainty or even truth is less important than their potential for enlarging the scope of our conceptions. (Rogers 2004, 6)

It is vital to give students the chance to explore concepts in a more open and creative setting, as this type of discovery-oriented learning can facilitate conceptual understanding in ways that are absent from rules-oriented pedagogy. In this respect, integration of creative activity in the form of more open-oriented assignments would provide balance

and relief to closed assignments and offer an improvement to undergraduate theory and musicianship curricula.

2.3 Focus on Western Literature

Undergraduate theory and musicianship curricula can be designed to follow a historical narrative teaching concepts within a stylistic framework, or they can be taught astylistically in a more expansive context that embraces and highlights commonalities among styles and time periods. This choice is present at almost every level of a theory program. For example, counterpoint can be taught through a single historical lens, that of the 17th, 18th, or 19th century, thereby engaging students with the idiosyncrasies of any of these particular styles. On the other hand, it can also be taught in a more astylistic manner, perhaps using Fux as a starting point for introducing basic concepts and then supplementing this with examples from across the ages.

Naturally, the approach will differ depending on the type of school, its goals, and the background of both students and instructors. In teaching core concepts, should an undergraduate theory and musicianship curriculum focus on the common-practice period, should it acknowledge and cater to a more expansive view of the Western musical tradition, or going a step further, should it place Western music within the context of a more expansive and inclusive global musical culture and system of values? The trend among the majority of undergraduate theory and musicianship curricula is often to restrict study to common-practice masterworks at the expense of other styles of music. This approach has its benefits: a firm conceptual understanding rooted within a particular stylistic period functions as a point of reference from which students can evaluate other

music. For example, an understanding of common-practice music gives students a perspective for engaging the music of the 20th century, as well as medieval and Renaissance music, all within the context of the Western tradition and Western aesthetic criteria.

Even so, there are problems associated with curricula taught through a single style. Rogers writes, “the undue emphasis on the common-practice period in traditional theory curricula has been a short-coming long in need of adjustment” (Rogers 2004, 20). By placing too great an emphasis on learning through Western common-practice masterworks, curricula often fail to reflect the pluralist musical environment that currently prevails (Hickey 2003; Regelski 2002; Schmid 1995; Schafer 1976; Boardman 1968). Robert Morgan describes this environment;

What we have today is a sort of global culture, of seemingly unlimited spatial and temporal scope, that provides a vast storehouse of stylistic and technical possibilities from which composers may draw at will, combining ingredients in any desired mixture. Instead of a “current musical style” in any traditional sense of this term, that is, a set of shared principles and conventions—we have only a range of shifting alternatives and provisional choices. (Morgan 1991, 486)

The current musical landscape is stylistically eclectic and Western classical music is not only informed by, but intertwined with popular music, jazz, and the music of other cultures. To fully understand the current state of Western music, students must grasp an understanding of these other musics, in addition to mastering the Western classical tradition. Most curricula fail to incorporate an eclectic variety of music into the undergraduate curriculum, and instead focus narrowly on a singular tradition, usually the music of the common-practice period.

To illustrate the drawbacks of this singular approach, consider the following counterpoint example: *compose a species counterpoint above the given cantus*. Implicit in this example are a number of problems inherent to a singular approach. Like most activities early on in undergraduate curricula, this exercise focuses on pitch and rhythmic variation. Little attention (if any) is paid to dynamics, texture, color, or articulation. This is typical of undergraduate theory and musicianship pedagogy: undergraduates are taught to engage common-practice literature primarily through tonal relationships and meter. Entire undergraduate curricula, beginning with rudiments and proceeding through studies in counterpoint, harmony, and culminating in studies of form, are typically structured according to pitch-related phenomena. While parameters such as texture and dynamics factor into a study of form (e.g., in a sonata-form movement the primary theme, transition, secondary theme, and development may all possess unique textural and dynamic characters), they are taught as secondary and as a product of pitch relationships. Students are taught to perceive form from the perspective of cadence, a Western phenomenon that is defined by pitch and meter. Much of undergraduate theory and musicianship curricula focuses on building towards an understanding of cadence that then facilitates the ability to perceive large-scale formal structures within tonal music. This creates problems and bias in student evaluation and experience of other music. Without complementary training, how can we expect students to be prepared to engage music of other traditions that is defined by different principles? For example, conventional undergraduate theory and musicianship training offers practically no precedence for engaging the colotomic structure of Javanese gamelan music. Even in the context of the Western tradition, conventional training leaves students ill-prepared to engage 20th-

century works motivated by musical factors other than pitch and rhythm, such as Penderecki's *Threnody for the Victims of Hiroshima*.

Emphasis on Western common-practice examples conditions students to evaluate music using tools tailored for a specific literature and leaves them without the tools to engage the music of other styles and cultures. According to Will Schmid (1995, 81), students are often left with a "Renaissance-Baroque-Classical-Romantic way of processing such diverse musics as blues, African drumming, Indonesian gamelan or Indian sitar music." This is particularly troubling in a post-modern musical climate in which many musical traditions co-exist and inform one another. Students are apt to encounter a variety of styles throughout the careers. For example, performance majors could be asked to perform on a new piece for small ensemble written by a composer with deep knowledge of African rhythms and textures; prior exposure to African drumming would produce a more informed performance. It is easy to conceive of countless other scenarios in which undergraduate music majors would benefit from a more universal musical knowledge. A pan-stylistic pedagogical approach would prepare students for these unavoidable encounters, and would be an invaluable asset and improvement to undergraduate theory and musicianship curricula.

2.4 Fragmentation of Musicianship Concepts

Many undergraduate theory and musicianship curricula break musicianship into discrete elements. Consider the following core requirements for the Bachelor of Music concentration at the University of Massachusetts Amherst.

Core Requirements for all Bachelor of Music concentrations:

Theory - 5 semesters
Aural Skills (Ear Training) - 4 semesters
Music Literature - 1 semester
Music History - 3 semesters
Applied Music (Private Study) - Throughout the curriculum
Ensembles - Throughout the curriculum
Class Piano - 4 semesters
Conducting - 1 semester

Many schools, whether conservatory, liberal arts college, or large public or private university, similarly break up musicianship into constituent parts. This fragmentation is beneficial for a number of reasons. For one, this allows technical skills and knowledge to be developed and honed in an isolated and controlled environment. Segmentation of total musicianship into these narrow classes allows for easy evaluation of student progress and therefore allows classes to focus on achieving well-defined benchmarks to mark student progress. This makes it easier for both students and teachers to manage course work and material.

Although this isolated curricular approach is normative, efforts to unify undergraduate curricula began in the 1960s with such initiatives as the Manhattanville Music Curriculum Project (Thomas 1970) and the Contemporary Music Project (Della Joio 1968). These efforts were concerned with comprehensive musicianship in undergraduate curricula and were aimed at fragmented curricula that did not give students ample opportunity to synthesize elements into a whole and practical conception of musicianship. A quotation from the Manhattanville Music Curriculum Project crystallizes the argument for comprehensive approaches to undergraduate theory and musicianship:

Musical factors should never be totally separated from the musical settings that give them significance. A fragmented study can only produce distorted perspectives. While in any educational strategy the primary focus may be on one concept, (i.e. pitch, repetition, clusters, pulse) the relationship of this concept to a total musical framework must be

maintained. An exclusive study of form, harmony, orchestration, melody, or any other isolated musical factor tends to inhibit not only the student's perspective capability, but the significance of the factor itself. (Thomas 1970, 92)

Real musical intuition comes from real musical experiences. Musicianship is not about the ability to sight-sing in isolation or about hearing and identifying musical phenomena in a controlled environment; rather, it is about using these skills in a real-world setting. For example, when medical students are in the field for the first time with real patients, it doesn't matter that students scored well in any particular class or test. Of utmost importance is their ability to synthesize information and use it to effectively diagnose a patient and solve a unique problem at hand. The field of medicine acknowledges that isolated learning is no substitute for a job that mandates practical and adaptive use of information, and thus it requires extensive residencies and field experience from students.

As theory and musicianship instructors, do we place more value on success in isolated and controlled environments, or do we value practical and cohesive musicianship that can be used effectively in real-world situations? Both these halves of musicianship are vital. Too often the fragmented approach and success in its various areas becomes the end result or product. The bigger picture is lost and so fragmented curricula create musicians with mastery in isolated circumstances, but who have little capacity to think outside the box of their formalized training and apply their knowledge and skills to real-world circumstances simply because they have had few opportunities to practice this in the past. Rogers addresses the importance of providing opportunities for synthesis in musicianship training:

To rectify compartmentalization of music study and to substitute holistic learning is the ultimate goal. All facts are originally learned one at a time, but genuine musical insight is usually only achieved when facts and ideas

are *brought together* and seen in *true relationship* by totaling more than the sum of their parts. (Rogers 2004, 21)

In order to remedy compartmentalization, as mentioned earlier, Regelski has proposed that theory classes should become more like “musicianship laboratories” (Regelski 2003). Curricula do not require drastic restructuring in order to promote a comprehensive approach; however, existing curricula could be improved by providing students with ample opportunities to synthesize the various elements of musicianship through creative acts such as improvisation and composition. Musicianship laboratories, by promoting creative composition and improvisation, would provide students with opportunities to synthesize various elements of musicianship. Students need to be able to draw from all of their training to respond intelligently and effectively to practical situations that exist outside of isolated and controlled classroom environments.

2.5 Design from Specific to Broad

The primary concern of undergraduate theory and musicianship curricula at early stages of study is to focus on building the necessary tools and knowledge for engaging Western tonal music. Michael Rogers states that students often spend the first three years of study acquiring the necessary background that facilitates later exploration of theory’s more interesting concepts; what Rogers (2004, 4) calls the “essence” of music theory. Rogers draws a distinction between two levels of pursuit: “forging conceptual tools (knowledge) and then actually using those tools (the thinking itself)” (4). He writes:

Rudiments and fundamentals, while absolutely indispensable, are most important for establishing an essential background that leads to the eventual study of other things. (Rogers 2004, 4)

Curricula begin with these specifics and gradually move toward broader theoretical concepts. For example, take the study of form. Understanding form in a Western context requires knowledge of cadence, which requires knowledge of harmony and voice leading, which requires knowledge of counterpoint, all of which require an understanding of scales, intervals, and chord construction. Students need a mastery of tonal grammar before they can understand how this grammar functions at higher levels (i.e., on the scale of complete pieces of music). Best calls this “back end-forward” thinking:

instead of beginning with music as poetic process, we start off with one of its grammars, mistakenly calling it theory. This begins a process of the ex post facto substituting for the a priori; the micro precedes the macro; the detail informs the principle, and cause follows effect. We introduce secondary – perhaps even tertiary – rules at the expense of fundamental process, continuing more on what not to do than on what is creatively possible. We spend immense amounts of time dismantling and re-assembling musical trees without giving too much thought that they might just be specks in a forest. This further means that we may spend little or no time on what constitutes the forest itself, let alone how it comprises a living ecology. (Best 1992, 12)

It is not until later in the curriculum that students begin to engage pieces as a whole. In this respect, curricula could be improved by balancing skill and knowledge with exploration of broader concepts at every stage. For example, curricula could be made more effective if students were given opportunities to explore form prior to achieving mastery in Western tonality; or, to use the analogy presented by Best, if curricula cultivated an awareness of “the forest” concurrently with a study of its trees and floral anatomy. One solution is a lab-like setting where students are free to experiment with and explore musical materials. Curricula would cultivate what Rogers describes as “the thinking itself” concurrently with the acquisition of knowledge.

CHAPTER 3 PROBLEM-SOLVING ACTIVITIES: A PRACTICAL BASIS FOR IMPROVEMENT

Undergraduate theory and musicianship curricula would be improved by integrating problem-solving activities alongside more traditional theory pedagogy. Problem-solving pedagogy uses composition and improvisation as pedagogical tools for developing and synthesizing theory and musicianship skills, and provides an open laboratory environment for students to experiment with theoretical concepts in a sonic medium. It also provides a forum for facilitating overall musicianship growth, and can promote the use of a variety of musical examples, while also keeping theory curricula relevant and practical throughout the course of undergraduate training.

3.1 Problem-Solving Activities

Composition and improvisation become effective pedagogical tools when they offer a balance between creative freedom and limitation. As described in the previous chapter, a spectrum of limitations imposed on creative activity exists. Many undergraduate activities exist as closed musical activities (Hickey 2003, 42). On the other side of the spectrum exist “open” activities, void of any limitations (i.e., compose anything you want) (Hickey 2003, 42). Margaret Lucy Wilkins describes this absence of limitations as *free composition*:

The term *free composition* implies creative work that is not stylistically based within historical eras. In practice, it has come to mean composing within a twentieth- and twenty-first century Western European style, open to individual interpretation. (Wilkins 2006, 2)

Free composition provides too much freedom and lacks the focus needed for it to function as an effective teaching tool. The goal is to facilitate conceptual understanding

by promoting problem-solving behaviors. Hickey (2003, 34) writes, “problem-solving behavior includes manipulating, exploring, and selecting elements of a problem and shaping the parameters of the problem itself.” Problem-solving activities strike an effective balance between “closed-ness” and “open-ness.” Creative restrictions focus student efforts on a particular concept or on solving a particular musical problem and understanding is achieved by exploring the undefined parameters of the assignment. In this sense, problem-solving activities provide a creative framework, encouraging students to freely explore a concept and determine its critical elements. Elizabeth Berkley writes:

Teaching composing should facilitate students’ discovery of the phenomena used to make a composition through problem-solving in order to promote a working conceptual knowledge of musical principles and elements. (Berkley 2004, 258)

Problem-solving activities encourage students to explore the problem’s framework and in doing so, discover its essential elements. Effective problem-solving activities will limit focus to a particular concept, but also encourage creative exploration of that concept (Regelski 2002, 36).

The following example demonstrates a balance between creative limitation and freedom: *Using your primary instrument, compose or improvise a piece of music in rondo form. You may use only three pitch classes in your composition.* Students are limited with respect to pitch and in addition, must also write within a particular formal template, in this case rondo form. However, the exercise accomplishes more than simply testing students’ comprehension of rondo form. The restrictions with respect to pitch and form function to pre-define a creative framework and it is within this area that problem-solving occurs. This assignment focuses students on using contrasts of dynamics, texture, articulation, and tone color in order to fit within a predefined framework, in this case

rondo form; however, the focus is on the undefined parameters of the exercise. This open area for exploration is where conceptual understanding takes place. Consider the inversion of the previous exercise. *Using your primary instrument, create a piece of music that uses contrasts of rhythm, dynamics, texture, and color, as the means of defining form. Try incorporating large scale-repetition into your piece.* Students are restricted with respect to the means of defining form so instead the focus is on exploring possible formal ideas and schemes. Although not every student will arrive at rondo form, the framework is primed for this form and the instructor can guide students toward this goal with feedback throughout the process. Including the statement, “Try incorporating large-scale repetition into your piece” would certainly help focus student efforts on ways of structuring large formal blocks, essentially framing an exploration of various rondo schemes. In addition, supplementary listening examples could demonstrate how great composers have solved this very problem. For example, the first tableaux from Stravinsky’s *Petrouchka* could be a powerful example at this point. Or depending on the type of school, even a recent pop song could prove illustrative. For example, Nikki Minaj’s “Starships” is a very basic example of the use of contrast to define a repetitive formal structure—essentially a simple rondo form.

Limitations and freedoms can be adjusted to shift the frame of exploration and therefore the focus of a problem-solving assignment. For example, if the focus is to explore pitch relationships, the following assignment would prove effective. *Using a melody-and-accompaniment texture throughout, compose or improvise a piece in rondo form.* Texture and form are defined by the assignment’s prompt, therefore priming an exploration of pitch, dynamics, and perhaps articulation. In exploring the undefined

parameters of the exercise, students are asking themselves the question, “How can I create variation and define form within a piece that uses only melody-and-accompaniment textures.” This prompt could be an excellent way of exploring key relationships with students, as tonal and pitch variations would be one of the chief means through which variation and form would be achieved within the parameters of this exercise. Instructors could guide the students to explore relative keys, or could limit the exercise even further by saying that the piece must be tonal and must use parallel, relative, or other closely related keys. Supplemental listening assignments could draw from rondos by Beethoven or Mozart. Even a piece of pop music such as the Beatles’ “When I’m Sixty Four” uses juxtapositions of key to help distinguish verse from chorus from bridge. Regelski discussed the importance of these kinds of open-ended assignments:

They help students to understand the *how* and understand ways and why composers might put audible structure to sounds—or the consequences (creative or negative) of ignoring or avoiding “form.” The “why” of musical form, then, is understood before and as a condition of learning some of the typical ways in which composers have approached the “conventional” or “characteristic” forms studied in traditional “form and analysis” classes—indeed, in perceptual and conceptual terms, why and how such forms such as the sonata or rondo forms developed as they did to begin with.” (Regelski 2002, 33)

Problem-solving activities are to music students as practical hands-on experiences are to medical students. They provide opportunities to explore concepts in a practical setting and give students the chance to learn through doing.

3.2 Thinking “in” Music

Problem-solving activities use improvisation and composition as ways to facilitate direct student involvement with musical materials, thus removing theory and musicianship training from paper-and-pencil exercises and bringing students closer to sound by eliminating the linguistic/verbal medium. Problem-solving pedagogy facilitates thinking “in” music, thereby making it a powerful complement to traditional undergraduate theory and musicianship training. Michael Rogers writes of the importance of thinking “in” music:

Just as swimming cannot be learned from a book, real music learning rarely takes place without this live contact; composing, analyzing, and then hearing and playing actual pieces is the musician’s equivalent of jumping in the water and actually getting wet. “To play” music literally means to have fun by moving around sounds. (Rogers 2004, 21)

A passage by Paynter offers further explanation, providing ideas on how to create opportunities for “sound” learning:

This means going directly to our materials—the various instruments or musical ideas—and experimenting with them by improvisation until we have fashioned a piece of music. The process is one of selection and rejection, evaluating as we go along and confirming the details mentally (that is without necessarily writing them down) until we can remember what happens clearly so that the piece can be performed with reasonable accuracy. It is an experimental, trial-and-error process. Folk music is based on a similar process and most “composed” music also has its origins in this way of working. A composer works on an idea either in actual instrumental improvisation or else in a kind of mental improvisation in the abstract. Either way the music has to evolve and the composer needs time to explore his materials. Even though he may have developed the ability to do this in his head, at some time in his life he will almost certainly have spent long periods doodling on an instrument. We can’t expect our pupils to create music if we do not give them this opportunity to work at first-hand with the materials of music. (Paynter 1982, 12)

As Paynter describes, problem-solving pedagogy uses composition and improvisation to facilitate thinking “in” sound. What differentiates composition from improvisation is in

the issue of reflection (Robinson 1997, 37). Natalie Robinson (1997, 37) writes that improvisation requires “instantaneous” decision making, whereas composition provides the opportunity for revising musical ideas (Robinson 1997, 37). Improvisation is a necessary part of the compositional process because it generates the musical ideas for composition (Wilkins 2006, 18; Robinson 1997, 37; Paynter 1970, 13; Thomas 1970, 105). Improvisation and composition are not two distinct activities; rather, improvisation (along with reflection) constitutes the act of composing. In this respect, Hickey writes that music composition can be treated as “an ongoing activity in which students are given opportunities to experiment with musical sound” (Hickey 2003, 41). Composition and improvisation both promote the behaviors necessary for thinking “in” music and thus form the foundation for problem-solving pedagogy (Regelski 2002; Robinson 1997; Schafer 1976; Paynter 1970; Thomas 1970).

Consider the following anecdote:

Two students at a College of Education are playing music which they have painstakingly evolved for piano and drums: the lid of the piano is removed and Leslie gently strokes the strings inside with the flat of her hand. Catherine’s drums reply, softly and sensitively. The music builds: it is coherent. They know exactly where it should go. As they play, the piece becomes Theatre; their sensitivity to the sounds is reflected in their movements. Before this morning neither of them had ever thought of creating music. They chose to do this, decided on the sounds they wanted to explore, and have worked these sounds over and over until they have become the right sounds, the only possible sounds through which to say what has to be said. By this time tomorrow their piece will be refined and carefully notated in a system of their own inventing. They will have thoroughly explored their own music and met on the way with the music of Cowell and Stockhausen. They will not have been *taught* anything: can we say how much music they will have learned? (Paynter 1970, 12)

With problem-solving activities, the goal is for students to move, experiment, and play with sound and music, engaging them in purely musical acts and providing opportunities

to learn directly from musical materials. This learning through the act of doing would serve as a vital complement to undergraduate curricula that often lack this element of direct involvement.

3.3 Inherent Topics

Another aspect of problem-solving activities that makes them vital to undergraduate curricula is their potential to involve music of a wide variety of styles, both from within and outside the Western tradition, as teaching examples. This promotes conceptual understanding from a stylistically neutral vantage point, thereby complementing Western-dominated curricula that emphasize the common-practice period. To foster universally applicable skill development, problem-solving activities focus on “inherent topics,” a term that originated with the Manhattanville Music Curriculum Project of the 1960s:

Inherent concepts pertain primarily to the basic characteristics of the materials of music. Also included are fundamental structural factors and natural tendencies which override the limitations of one style, period or culture. For example, broad ideas relative to the musical significance of sounds being organized in time are intrinsic to all music. Basic concepts about density, intensity and pitch flow are also inherent, as are concepts about the interaction of the elements of music. Idiomatic concepts are those that deal with period practices, with the organizational schemes that have been devised by composers at one time or another in the history of music. Melody, in the shape of eighteenth and nineteenth century practice, the IV, V, I cadence, rock rhythms, etc. are all very valid musical ideas but must be classified as idiomatic concepts. Inherent concepts have permanence and are applicable to a wide spectrum of the art. Idiomatic concepts have less applicability and are constantly in a state of flux.
(Thomas 1970, 89)

As an integral part of problem-solving activities, the study of inherent topics encourages that the development of skills be applied in a wide array of musical contexts.

Studying a variety of music and exploring commonalities rather than differences among styles encourages universal applicability of concepts. Consider the following exercise. *Compose or improvise a piece of music using the provided melodic or rhythmic ostinato.* The “inherent” topic present in this exercise deals with variation and techniques for achieving variation. The broad scope of this assignment allows for many kinds of examples to be referenced for discussion. Following this activity it would be beneficial to juxtapose a variety of styles and examine how each composer or group of musicians treats rhythmic repetition. For example, comparing and contrasting an early piece by Steve Reich such as *Clapping Music*, a J. S. Bach piece such as the Prelude in C Major from the *Well-tempered Clavier*, Book 1, a West African hand-drumming excerpt, and a jazz piece such as “Nefertiti” by Miles Davis. In addition, a class performance of Reich’s *Clapping Music* could be very instructive here as well. These pieces would prove illuminating for many undergraduates, as each of these examples demonstrates different ostinato techniques. The Bach example demonstrates harmonic variation of an ostinato. Bach alters the ostinato to create different harmonies and chords, all within a functional harmonic context. Thus, the piece is about harmonic tension and release, and in a functional harmonic context, understanding the harmonic journey away from the established tonic and then back by the end of the piece. In the African hand-drumming excerpt, the ostinato functions differently. Short repeated rhythmic motifs create an interlocking polyrhythmic structure. The music changes very little and has no definitive beginning or ending. Much of the tension derives from the listener’s shifting perspective. Listening to one motif causes the listener to hear the piece one way, whereas listening to another motif might cause the listener to experience the polyrhythmic fabric completely

differently. The piece does not have a beginning and end in the same way as the Bach example; performers can begin and end at any time. The music is about continually experiencing new listening perspectives and hearing new tensions within a repetitive polyrhythmic framework.¹ In the Miles Davis example, two horns repeat an ostinato melody for the duration of the piece. The bassist, drummer, and pianist freely improvise over the melody, thus coloring the ostinato harmonically, rhythmically, and texturally. The piece is primarily about improvisation; the ostinato is a vehicle around which the players create shifting moods and feels.

Using a variety of styles as teaching examples allows students to draw parallels between these different kinds of music, and contextualizes Western music within a more global musical culture, allowing students to develop criteria for evaluation that transcend any singular frame of reference. Rogers writes:

For example, pieces by Machaut and Webern might be studied side by side to look for common features, such as handling of registral space, use of silence, motivic germs, rhythmic relationships, individual line independence, intervallic restrictions, density, time spans, cadences, etc. It would be normal in such a course of study to begin with an idea (defining a term, establishing an analytical category, pursuing a formal process, or discussing a compositional procedure) as the point of departure rather than a historical era or single piece, and then jump—often rapidly—from period to period, or composer to composer to illustrate the wide applicability and significance of the concept—not just for a style or particular composer but for music in general. The issue here seems to be whether differences or similarities are more important when comparing pieces. (Rogers 2004, 26)

Integration of inherent topics through problem-solving activities would resolve issues arising from Western hegemony in undergraduate theory and musicianship curricula.

¹A performance of Reich's *Clapping Music* would provide similar benefits. The piece is about perceiving different polyrhythms that are created by looping a single rhythmic phrase against itself. Each successive tier of the piece presents a new version of the phrase (simply by shifting the start point of the phrase) against the original version.

Concurrent placement alongside traditional Western-dominated curricula would allow students to simultaneously build idiomatic tools as well as skills for broader musical applications. This would effectively update and improve outdated curricular models that focus on Western music and reestablish cultural relevance for the training of twenty-first century musicians.

3.4 Evaluation

Because they are so different from traditional written theory assignments and coursework, evaluating student responses to problem-solving activities requires different criteria than traditional content-oriented activities. Rebecca Berkley writes:

When operating within the constraints and freedoms of composing, students are not seeking a single right answer to the composing problem, but are constructing a cogent response that communicates its own logic. (Berkley 2004, 249)

Learning takes place through the process of guided creative exploration, therefore conceptual insight gained through these activities cannot be mapped to quantifiable learning benchmarks like in traditional theory curricula. The goal of problem-solving activities, especially at early stages, is to foster conceptual understanding through active participation in musical processes, not to test whether students have assimilated basic facts, terms, or idiomatic rules (Berkley 2004; Sarath 1997).

The degree of open-endedness of assignments correlates to difficulty of evaluation. Fewer limitations provoke more problem-finding behavior, meaning there will be greater variation among student solutions. Hickey described the relationship between openness and assessment:

The issue of open versus closed assignments is inextricably linked to assessment. If the purpose of a composition assignment is specific (to teach how to write in rondo form) or is to teach a concept (such as 6/8 time), the assessment can and should be very specific. If a composition assignment is open, however, then simple feedback would be more appropriate than an evaluative assessment. (Hickey 2003, 43)

In this respect, assigning grades is difficult when using very open-ended problem-solving activities. According to Thomas Regelski, problem-solving activities are “*developmental and summational, not accumulative*” (Regelski 2002, 36; emphasis Regelski). He describes the differences between these two types of learning:

In other words, each prior stage of learning is incorporated (assimilated or accommodated) in the next level of development. The result is an increasingly complex network of richly related cognitive structures rather than a repository of impersonal, isolated “factoids” *about* music. This is an obvious advantage in comparison to the usually lock-step approach that, at best, accumulates more and more unrelated (and often arbitrarily selected) information. The presumed pay-off of such accumulations, of course, is not even expected until the very end of instruction. But because the information was acquired in atomist bits and never used (i.e.) only tested, because it is arbitrary in relation to what is or is not “useful,” and because of the failure of long-term memory, typically such information cannot be recalled or used in functional ways at the conclusion of a course of study. In contrast, the developmental learning arising from sound composing involves progressive integration of past learning and new learning in a so-called “spiral curriculum” of ever-richer concepts and skills learned in action and thus capable of future use. (Regelski 2003, 36)

To attempt to find concrete ways of evaluation is perhaps missing the point of the approach entirely. Rogers also stresses the importance of allowing for open-endedness with respect to student responses. In addition, he states that “success in a music theory course cannot be measured by a grade at the semester’s end but only by the strength of the reverberations from the course for decades afterward” (Rogers 2004, 8). Compared to content-oriented assignments, open-ended problem-solving activities are driven by different pedagogical mechanisms and therefore warrant different criteria with respect to

grading and evaluation. Whereas content-oriented assignments provide concrete means for evaluation, problem-solving activities of a more open nature are best addressed with feedback, discussion, and supplemental listening assignments (for examples refer to the appendix). Assessment is perhaps best offered on the basis of student attendance and participation. In this respect, problem-solving activities provide a complementary rubric to content- and assessment-driven assignments, especially at early stages of undergraduate theory and musicianship curricula.

For problem-solving activities that incorporate more idiomatic elements into their design, the notion of style can also be used as an arbiter of quality and basis for evaluation. Instructors might choose a masterwork and ask students to emulate a particular stylistic element. Consider the following example. *Using your primary instrument, create a piece of music that uses contrasts of rhythm, dynamics, texture, or color, as the means of defining form. Try incorporating large scale-repetition into your piece.* Instructors could ask students to emulate the way a particular composer delineates form through contrasts of rhythm, dynamics, texture, and color. For example, instructors could choose Debussy's *Prelude a l'apres-midi d'un faune*. The piece demonstrates an arc form. Contrasts of musical parameters occur gradually over the course of the entire composition. The piece begins softly, thinly, and transparently, and gradually crescendos dynamically, texturally, and timbrally. If given this piece to emulate, instructors could expect students to use gradually gradations of parameters as a means of delineating form and grade students on how well they demonstrate these ideas in their own compositions. On the other hand, instructors could assign a piece that uses contrast completely different, such as the first tableaux from Stravinsky's *Petrushka*. The piece demonstrates a block-

like approach to form, relying on stark juxtapositions to transition between sections. In this case, instructors could evaluate students based on how well their solutions demonstrate the idea of stark contrast. In the case of the previous two examples, specific master works function as models for students to emulate. Students would still be operating within a creative framework; however, emulating the compositional style of a masterwork would limit student responses and function as a rubric that instructors could then use to evaluate student progress.

CHAPTER 4 CURRICULAR INTEGRATION AND IMPLEMENTATION

4.1 Versatility and Adaptability

There is no single correct way to implement the problem-solving pedagogy within undergraduate theory and musicianship curricula. The possibilities for integrating problem-solving pedagogy are limitless and the approach can be adapted depending on schools and their goals. Inherent flexibility is perhaps the most salient characteristic of problem-solving activities. For this reason, schools can develop unique approaches to problem-solving pedagogy that complement and balance existing curricula and that reinvigorate pre-existing materials.

Problem-solving pedagogy can be woven into even the most conservative curriculum designs. For example, problem-solving activities can aid the exploration of concepts in curricula that focus primarily on the common-practice period. Conventional counterpoint classes could be improved by integrating problem-solving activities that give students greater opportunity to think “in” sound and to work directly with musical materials. The following example demonstrates a way to integrate problem-solving pedagogy into core undergraduate counterpoint classes. *The instructor will sing or play a cantus. The student must sing or play a first- (or second-, third-, fourth-) species counterpoint above. This exercise should take place entirely by ear. Have the class evaluate (by ear) whether the performances adhere to proper counterpoint rules.* This example demonstrates a more “closed” take on problem-solving activities: student creativity is strictly limited by the problem’s framework (i.e., counterpoint rules). Even so, the exercise can function to enhance the teaching of a core theory concept. For one, the assignment offers balance to more traditional written exercises because it promotes

thinking “in” music: students hear the material as opposed to seeing it. The exercise also has the effect of bringing many elements of musicianship together into a single activity, and to a much greater degree than that found in typical counterpoint classes.

In the above example, problem-solving pedagogy functions as a supplement to more traditional undergraduate theory and musicianship training rather than as the basis for curricular redesign. The potential of problem-solving activities to encourage astylistic exploration of core concepts is downplayed, and instead the activity functions more as a means for promoting sound learning and synthesis within pre-existing classes and material. Although this approach is well suited to some schools, others may wish to adapt problem-solving pedagogy differently. For example, liberal arts colleges might embrace curricula that encourage conceptual exploration in a broader sense, and therefore might tailor problem-solving activities to point towards topics with wider resonance among many different styles and varieties of music. In this way, activities would avoid focusing on the idiosyncrasies of any single style and instead engage students in broader conceptual exploration of inherent topics.

One goal of counterpoint classes is to teach basic principles of voice independence and interdependence. If the object is to replicate common-practice music, one imposes restrictions against parallel perfect intervals (and so forth); however, instructors can “open” the teaching of counterpoint to incorporate parameters other than pitch. The following exercises demonstrates one possibility. *With a partner, create/improvise a piece of music for your primary instruments. At times the instruments should blend to form one sound. At other times they should function as two distinct voices. You may use whatever techniques you desire to achieve these effects.* Imagine this

exercise presented to students at liberal arts colleges early in the course of theory and musicianship training. Most students will have little or no written-theory experience prior to their undergraduate training. Therefore, instructors might encourage students to explore broad gestures in their compositions. Imagine the pairing of a flute player and a violin player. The violin player plays a C, *sul tasto*, an octave above middle C on the A string, and the flute player plays this same note. Both students sustain the notes as long as possible and the tones blend and become a single sonority as opposed to two distinct instruments. How much would the students need to vary from each other to become independent voices and to be heard again as two distinct instruments? If one of the players starts to articulate more frequently, instead of sustaining a consistent drone, the two instruments would begin to distinguish themselves. If the players both picked two notes and each switched randomly between them, would this have the effect of creating voice independence? If one player chose a low note and the other chose a high note and they each played a drone, would this come across as a single conglomerate tonality or as two separate instruments? If they did this but varied their dynamics creating volume curves, how would this affect the way the resultant sound is perceived? How would the results differ if they both attempted the same volume curve? Would students perceive the instruments as more independent if one increased while the other decreased in volume and vice versa? What if the violin player varied the location of the bow in relation to the bridge to change the color of the sound while the flute player uses a consistent tone? What if one student played a straight tone while the other played with a tremolo or flutter tongue or with as much vibrato as possible? Keen instructors could lead classes to conceptual points regarding voice independence. Contrary and oblique motion (or

gestures in the case of the above exercise) can promote independence among different musical voices, whereas similar motion (or gestures) tends to result in a more homophonic sound.

4.2 Notation

In the context of problem-solving activities, Western notation can restrict student creativity because conceptual understanding often develops much faster than students' notational skills. Thomas writes that a student's ability to think "in" sound "far out-strips his or her ability to mathematically compute these ideas for translation into Western notation, especially at early stages in the curriculum" (Thomas 1970, 91). In problem-solving activities, especially those with few limitations, student compositions are often too complex for them to notate using traditional Western notation. An anecdote from the Manhattanville Music Curriculum Project illustrates this point:

For example, a student would improvise on a tomtom, and create a very musical composition. Ideas of form were present. There was quite a subtle use of dynamics, and the rhythms were very sophisticated. Even the timbral choices were evident in the way the hands touched the rim and various parts of the drumhead. When the student was required to use formal notation, the composition was simply bang, rest, bang, rest, bang bang, rest, rest, rest, with no dynamics, no aural imagination, and little if any personal concern. (Thomas 1970, 54)

In this example, a student's proficiency (or lack thereof) at using the Western notational system imposes limits on creativity, restricting responses to a particular framework as defined by the student's notational competency.

Graphic notation is better suited to problem-solving activities (Auh 1999; Thomas 1970; Paynter 1970). The following is from the conclusion of Auh and Walker's 1999 study called "Compositional Strategies and Musical Creativity When Composing with Staff Notations versus Graphic Notations among Korean Students":

The purpose of the study was to examine compositional strategies and musical creativity when composing with staff notations (traditional group) versus graphic notations (non-traditional group). The results showed that the non-traditional group used more diverse compositional strategies than the traditional group. The results suggest that composing music with graphic notations can facilitate students to use more diverse compositional strategies and to make up more creative compositions than composing music with staff notations. (Auh 1999, 2)

Student-devised graphical notation is the preferred method for problem-solving activities.

Students can plot ideas, textures, keys, etc., without the Western staff system. In this regard, graphic notation allows students to develop schematic charts or maps from which they can base their improvisations and compositions, without limiting the creativity of their responses. Students have something to actively prepare as opposed to engaging in pure improvisation. Instructors may then use these charts as another means to aid evaluation. How much thought has the student put into the schematic? How well has the student executed the schematic?

This kind of pre-compositional planning also helps prepare students for engagement with music outside of the common-practice period. Works such as John Cage's *Fontana Mix*, Penderecki's *Threnody for the Victims of Hiroshima*, *Music for Airports* by rock composer Brian Eno, all use devised notational schemes that resemble the kind of graphic scores that students might develop in response to problem-solving activities. In this way, encouraging the use graphic notation as part of problem-solving pedagogy, especially at early stages of undergraduate theory and musicianship curricula, can help form a base from which students can engage music outside of the common-practice period.

At later stages in the curriculum, students may have developed the proficiency necessary to notate their compositions using the Western staff system. Instructors may

encourage the transition from devised to Western notation on an individual basis; however, until students have developed notational facility, problem-solving classes should encourage devised graphical notation designed to fit the unique requirements of each particular activity and solution. In the case of problem-solving pedagogy, this assures that sound remains central to the learning experience.

The following three figures (4.1, 4.2, and 4.3) display graphic notation for the following assignment: *Compose or improvise a piece for your primary instrument while trying to avoid playing any distinct pitches.* In figure 4.1, different lines and shapes indicate different gestures. In this example, the jagged lines could indicate a string player bowing muted strings, starting with short and quiet bow strokes and gradually increasing the radius and intensity of the bow. The middle sections could indicate a flurry of scratches, plucks, and taps on the muted strings as well as the body of the instrument. The piece would then conclude with the reverse of the opening gesture. In this case, the piece exhibits a loose arc form. Figure 4.2 could indicate different piano sounds created through use of the pedals and large clusters played with the fist and the arm. Figure 4.3 could indicate a wind composition. The lines loosely indicate the timbral trajectory of the player blowing air through the body of the instrument without creating any distinct pitches in the conventional sense.



Figure 4.1 Graphic notation for a string player.

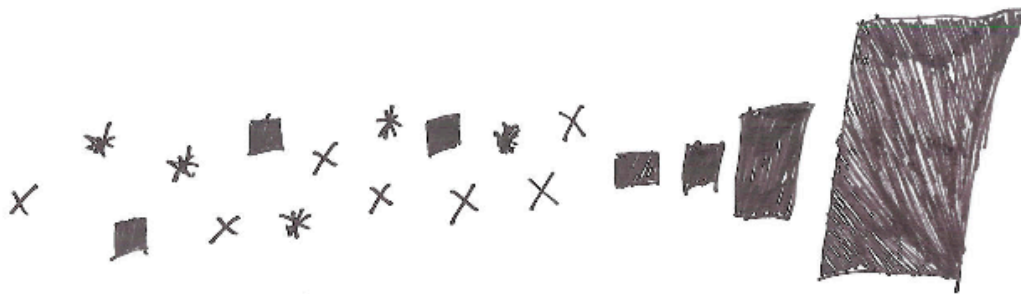


Figure 4.2 Graphic notation for piano.

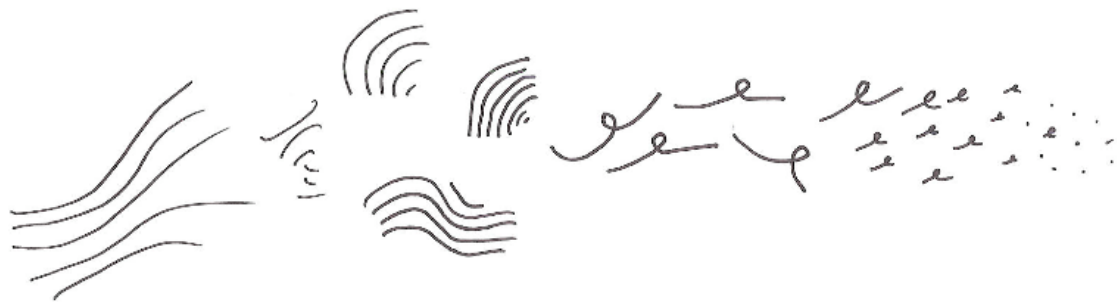


Figure 4.3 Graphic notation for wind instrument.

4.3 Integration with Existing Curricula

As a suggested strategy for implementation, problem-solving activities can be integrated with traditional theory and musicianship curricula in the form of laboratories that meet once every two weeks over the course of three semesters.¹ Running concurrently to traditional curricular studies, these classes would complement existing pedagogy by giving students opportunities to learn directly from sound and provide the necessary environment for theory and musicianship to become fully functional. In addition, this would balance the stricter methodologies and focus on Western literature and idioms found in traditional curricula. Figure 4.4 illustrates the complementary trajectories of traditional theory curricula alongside problem-solving curricula.

The appendix provides a list of problem-solving activities divided into three semesters. A spiral-curriculum concept provides the basis for organizing the activities (Thomas 1970). Regelski describes the spiral concept and its significance in comparison to traditional theory pedagogy. Throughout the three-semester curriculum, problem-solving activities propel students through higher and higher levels of sophistication with respect to various musical elements. For example, Thomas (1970, 32) writes that at early levels, a sensible goal is to have students pay attention to “elements of design and repetition,” or “identify various timbres used in the classroom and the instruments used to produce them.” Students might be required to simply recognize whether sounds are higher or lower than one another (40). Later in the curriculum, problem-solving activities

¹A three-semester curriculum is sufficient to allow students to develop problem-solving skills over the course of an undergraduate theory and musicianship curricula. A single year of study does not provide time for ample practice, while four semesters of training is unnecessary, as later stages of traditional curricula often incorporate broader theoretical concepts within Western and 20th-century idioms as well as activities similar to those which would be included in a fourth-semester of problem-solving activities.

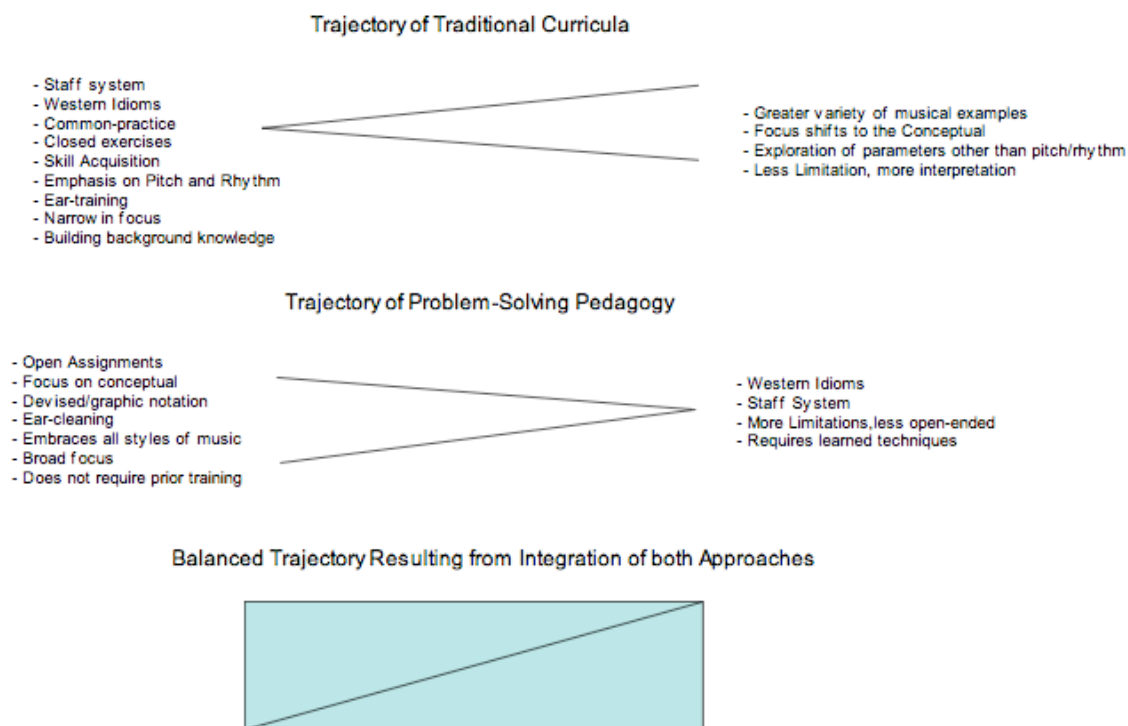


Figure 4.4 Trajectory of traditional theory curricula compared to a concurrent approach driven by problem-solving pedagogy.

might require students to explore canons, or “recognize sounds of composite timbre as distinguished from blending or contrasting sounds” (63).

Problem-solving pedagogy in the first semester focuses on broad and fundamental aspects of sound. This can aptly be described as “ear-cleaning,” a phenomenon developed by Murray Schafer in *Creative Music Education* (1976). The goal of ear-cleaning is to open students to all aspects of sound by exploring noise, silence, timbre, amplitude, melody, texture, pitch, and rhythm. Schafer writes, “*Ear Cleaning* expands traditional concepts of ear-training in order to deal with both the newer forms of today’s music and the acoustic environment at large” (Schafer 1976, ix). Activities build a foundation for

future studies and cultivate an openness to all musical possibilities, styles, and genres. In the first semester there are few (if any) limitations with respect to creativity. The goal is to develop awareness. Early theory and musicianship courses, primarily concerned with honing pitch and rhythmic concepts within a Western idiom, often neglect elements such as color, dynamics, and articulation. In the first semester, problem-solving activities maintain a focus on these neglected parameters, providing balance and complementing traditional undergraduate training in rudiments, counterpoint, and harmony.

In the second semester, focus shifts from awareness-development to manipulation of parameters through creative improvisations and compositions. Graphic notation (if not introduced during the first semester) is introduced in the second semester as a way for students to plan and document their solutions and as a means for instructors to grade and monitor student progress. Again, problem-solving activities complement traditional curricula by functioning as a platform for sound learning and by balancing the methodologies found in traditional curricula. In addition, instructors may begin to introduce stylistic idioms into second-semester activities. In the third semester, activities continue to explore texture, color, and dynamics, although within the context of specific stylistic idioms. In this respect, activities become more “closed” in nature. Thus, grading and evaluation is a bigger factor in the third semester as students must work creatively within more specific guidelines.

Figure 4.5 presents a sample syllabus for a first semester problem-solving class followed by a sample plan integrating exercises in tandem with a typical first-semester theory class.

Lab Meets Every other Friday 11:00-12:30.

Course Description: Problem-solving 1 provides students the opportunities to explore noise, silence, timbre, amplitude, and texture. This course compliments theory classes that focus primarily on pitch and rhythm. The goal of this course is to help build awareness of all elements of sound outside the context of Western idioms (i.e. notation, scales, tuning, etc.). The class is primarily lab-based: we will be exploring a variety of exercises as a class, in small groups, and also individually. Ultimately, goal is to inform your choices as a musician and help you grow, hopefully in a way that will be universally applicable to the individual choices each of you make as a musician.

Grading: The majority of assignments are completed aurally during class time. Assignments are designed to be open-ended, as opposed to having correct answers. You will get out of this class what you put into it. Therefore, the class is issued on a pass/fail basis: participation is crucial to your final grade and to the learning experience. Showing up and actively participating in class discussions and assignments will earn students a passing grade. You have one excused absence. If more than one lab is missed, a failing grade will be issued.

Required Materials: Your presence of mind, attention, and an eagerness to learn and expand. That is all.

Figure 4.5 Sample syllabus for a first-semester class.

Focus of Written Theory Coursework	Problem-Solving Assignments
Week 1: Rhythm and Pitch Diatonic Collection Whole/Half Steps	1A, 1E
Week 2: Major Scales and Keys Minor Scales and Keys	
Week 3: Intervals	1B
Week 4: Triads and Inversions Triads in Major and Minor Keys	
Week 5: Rotations of Diatonic Collection	1C
Week 6: Melodic Analysis and the Cantus Firmus First-species Counterpoint	
Week 7: Second-species Counterpoint	1D, 1J
Week 8: Third-species Counterpoint	
Week 9: Fourth-species Counterpoint	1F, 1K
Week 10: Review	
Week 11: Roman Numerals and Figured Bass Texture Voice Leading Basic Root Progressions	1G, 1H
Week 12: Voice Leading the I and V Chord Voice Leading	
Week 13: Voice Leading and Pre-dominant Chords	1I
Week 14: More on Species Counterpoint and Free Composition	

Figure 4.6 Sample plan for integrating exercises with typical first semester theory classes.

CHAPTER 5

CONCLUSION

Traditional theory and musicianship curricula are deficient in a number of areas: they stress content acquisition over conceptual understanding, favor closed over open approaches to assignments and assessment, place Western music literature (particularly common-practice masterworks) at the center of learning, present a fragmented approach to musicianship, and stress idiomatic details over broader theoretical topics. Integration of problem-solving pedagogy alongside traditional theory and musicianship pedagogy can provide the basis for a new curriculum. Problem-solving pedagogy has the potential to improve undergraduate curricula by providing balance to traditional curriculum design and addressing areas of deficiency. This occurs in a number of ways. First, problem-solving activities allow curricula to effectively balance written theory with sound learning. Second, they promote balance between creativity and stricter methodologies. Third, problem-solving pedagogy promotes the study of a variety of musical styles in addition to Western music, encouraging exploration of topics that relate to a broad spectrum of music and ideologies, all of which students are likely to encounter as active 21st-century musicians. Fourth, by providing opportunities for experimentation within a purely musical context, the proposed curriculum balances isolated skill development with comprehensive musicianship synthesis. Fifth, integration of problem-solving pedagogy with traditional theory pedagogy balances broad-scale theoretical issues with idiomatic skill development, especially at early stages the curriculum.

It is in these ways that problem-solving pedagogy can improve undergraduate theory and musicianship pedagogy and help form the basis for improved curricula. It is

my belief that the updating of theory and musicianship pedagogy is long overdue. My hope is that those who read this thesis will take an interest in problem-solving activities as pedagogical tools and pursue their own ways to incorporate this approach into undergraduate theory and musicianship pedagogy.

APPENDIX

SAMPLE PROBLEM-SOLVING ACTIVITIES

Semester 1 Sample Assignments

1A) Using his or her primary instrument, have each student see how many different sounds they can make.

This is an activity designed to open the ear. Students explore the extended sonic possibilities of their primary instruments and develop an awareness of instrumental timbre and texture.

Feedback: Instructors should encourage students to explore further possibilities. For example, violin students could be asked to explore sounds without the bow, or to create sounds without using the strings. Instructors must observe students and ask appropriate questions to guide them to new sounds. Students could also make suggestions to each other. In addition, applied music instructors could be asked to attend the class and perform the same exercise as a way to demonstrate sonic possibilities.

1B) "Have various students come to the front of the class and play a note as softly as possible. The class closes their eyes. When they hear a note they put their hands up. The amplitude of the sound must now be progressively reduced until one by one the rows of hands stay down and only one or two students at the front directly before the performer raise their hands (Schafer 1967, 14)." As a follow-up activity, obtain a sound-level meter and have the class play as loud as possible, measuring the loudness in decibels. Perform

this activity a few times, seeing if the class can get progressively louder with each try.

Then have the class compose a piece that exploits this dynamic contrast.

The exercise develops awareness of dynamic range. Students explore the dynamic limits of their instruments.

Feedback: Encourage the class to push the limits of their range. The quietest sound should be basically silent. Have the students explore this exercise individually or as a group. In addition, instructors could write a set dynamics on the board from *pianississimo* through *fortississimo* and have the class explore these markings in the context of this exercise. What would they play for each dynamic? Does knowing the full dynamic range of their instrument change the way students will interpret dynamic indications in the music they are performing?

1C) Have students make a list of every sound in the classroom environment. As a follow-up activity, have the class travel to different environments and document the sounds present in each. If it was within the school's budget to hand out field recorders, have the students record 5–10 minutes of what they consider to be the most interesting sonic environment.

The exercise facilitates total awareness of sound. Students take interest in non-musical sounds and determine on a personal level what textures, colors, and sounds create the most interesting sonic environments.

Feedback: Students should listen to the field recordings together as a class and discuss what elements they find most interesting about the soundscapes. Are these soundscapes considered music?

1D) Give each student a piece of paper. See how many different sounds can be created involving just a single sheet of paper. Have the class organize these sounds into a composition.

Students explore the musical possibilities of a common object: a piece of paper. Classes explore, in a rudimentary sense, how form is created in the absence of traditional instruments and materials; in this case through texture and color. Instructors could use this as an opportunity to introduce devised/graphic notation. Audio example 1D provides a sonic solution. The figure A.1 illustrates a graphic solution.



Figure A.1 Graphic solution to assignment 1D.

Feedback: What musical parameters give shape to the piece? The sample solution uses gradual changes to define form. Is it possible to create a piece using sudden changes? Could you combine these two approaches? Are there ways to make the graphic score more descriptive of the music? You could try using a key or legend to indicate the meaning of each graphic gesture. Is there a way you could indicate in the score how long each section of the piece should last?

1E) Explore the possibilities of a single tone. The class is given a single note to play on their instruments. How can this tone be made interesting (Schafer 1967)?

Students explore dynamics, timbre, rhythmic variation, and silence. Audio example 1E provides a sonic solution for a single instrument. In addition, some students may even suggest the use of acoustic space as a means of developing interest in the tone. For example, students might suggest that performers arrange in a circle or in different corners of the room such that the interest is created by the tone's varying location in the acoustic environment.

Feedback: Would you consider this solution to be a piece of music? Could you use repetition to create tension and release? Try pairing with a partner of a different instrument and repeating the exercise. Can you discover more ways to vary the tone and maintain interest? Try pairing with two other students and repeat again. Try maintaining consistency with one parameter while varying others. For example, maintain a consistent rhythm (as well as pitch) while varying timbre, dynamics, and articulation.

1F) "Given one tone and the following text, have the class make the text itself an example of the condition it is describing. 'Timbre is the tone colour of the note'" (Schafer 1967, 12).

The exercise calls attention to timbre and timbral variation. Audio examples 1FA and 1FB depict two possible sonic solutions. In the first example, students take turns reciting each consecutive word of the text. In the second example, students join in one by one on each successive word. The class could also experiment with different vocal production techniques (e.g., whispering, shouting, nasal voices, etc.).

Feedback: Are there ways to make the sounds of the voices more extreme? What if you experimented with the length of each word? Could you draw certain words out to extreme

lengths? What if you experimented with doubling? What voices produce the most interesting doublings? Try combining various techniques. What techniques create the most extreme variations of timbre? What techniques could be used to create subtle timbral variation? Which do you find the most interesting?

1G) Instruct the class to create the thickest possible texture. Have them also create the thinnest possible texture (Schafer 1967, 20).

Students manipulate textural density exploring techniques that affect perceived density. Follow up the assignment by listening to a variety of music and discussing the relative thickness or thinness of the textures.

Feedback: How does register affect the density of a texture? What about rhythmic activity or dynamics? Does pitch content affect the relative thickness or thinness of a texture? Try experimenting with different intervals and chord structures. Do certain instruments have the tendency to thicken a texture more than others?

1H) Have the class compose a piece by only clapping. The piece must go through as many textural and timbral changes as possible.

The activity develops awareness of timbre and texture and explores how these elements could contribute to defining a form. Audio example 1H presents a possible sonic solution.

Feedback: The piece uses stark juxtapositions to define form. What if you tried another piece that incorporates gradual changes? Could you try combining the two approaches? Can you think of other ways to vary the sound of clapping? Try using some classroom objects to help you vary the sound.

II) “Using any instruments you have (but not voices), explore the production of long and short sounds. Which instrument is able to produce the longest sound? What technique will give the shortest sound? Concentrate on the relationships between sounds of different length and silences of different length. Notes of any pitch may be used: it is the length of the sounds that matters. Create a piece of music out of these sounds and silences. When you are satisfied with the order of events and have practiced the piece several times, invent some means of recording the composition on paper. This will probably turn out to be some simple graphic notation. You could use dots for the short sounds and dashes of different length for the long sounds. Silences between the sounds will, of course, appear as blanks. These will be of varying lengths according to whether it is a long or short silence that is intended” (Paynter 1970, 97).

Students explore ways of rhythmically defining phrasing. Audio example 1I demonstrates a solution. The piece consists of seven phrases, which the student indicates in the score with brackets and numbers. The first and last two phrases are of similar design: a few short notes followed by a long note and punctuated by a short note. The third and fifth sections consist of three long notes. The middle section consists of a series of short notes. Figure A.2 on the following page depicts a graphic solution for this assignment. Note how the student broadly indicates the contour of the notes to be played.

Feedback: If you gave this score to another clarinet player, would they be able to recreate your piece from scratch? What elements of the music are not represented in the score? How could you incorporate these elements into the score so the composition

could be performed by someone else? Could you use a combination of Western and graphic notation to notate your piece more accurately?

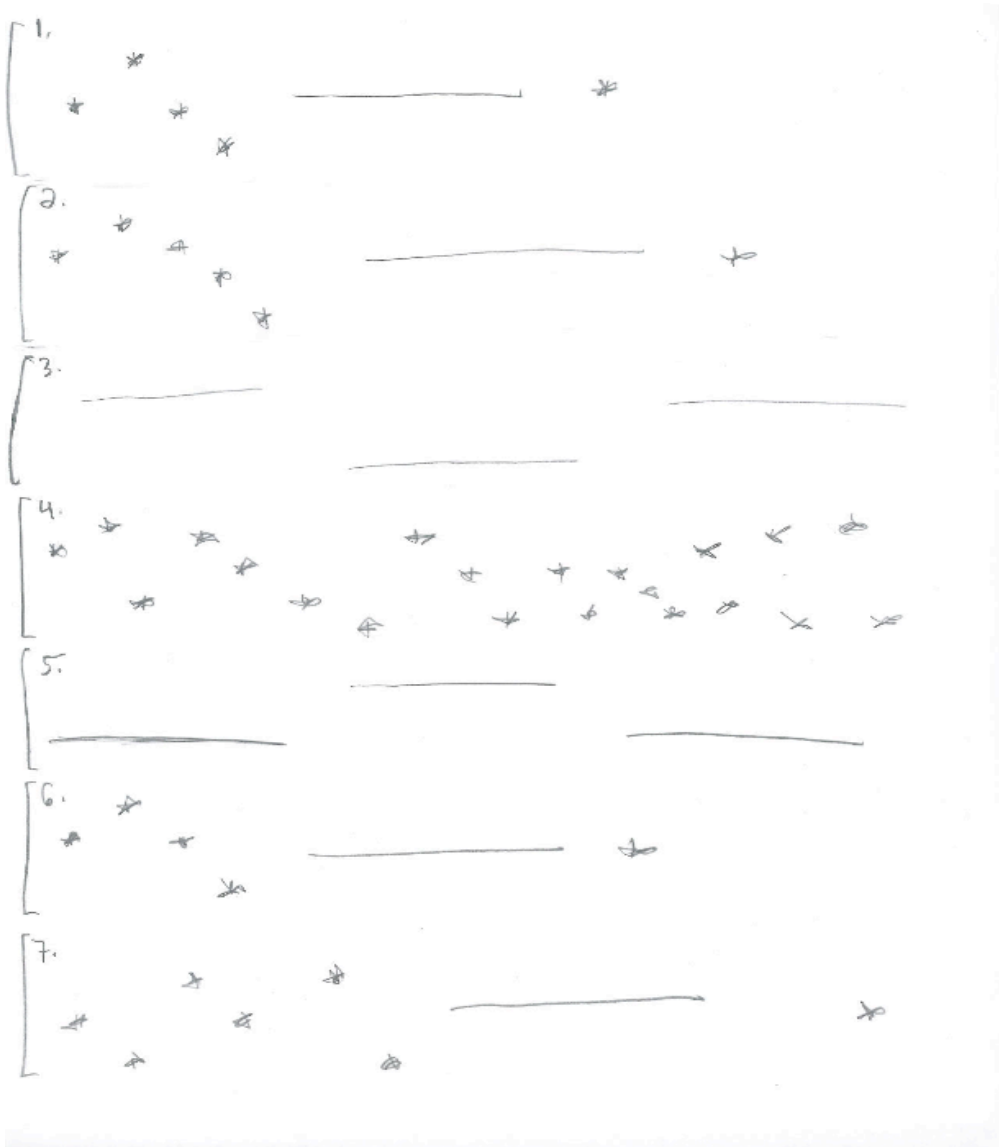


Figure A.2 Graphic solution to assignment 1I.

1J) Have students compose a piece on their instrument using only a single pitch.

This activity is closed to pitch variations but remains open with respect to other musical parameters. Students explore how dynamics, tone color, texture, density, and rhythm can contribute to form. Audio examples 1J1 and 1J2 depict two sample solutions. In the first solution, the student creates an arc. In the second, the student uses stark juxtapositions to define the form.

Feedback (1J1): How would you describe the shape of your piece? What parameters define this shape? It's great that the development is a controlled *crescendo*, with an expansion of register and intensity. It's easy for the listener to follow and creates a sense of expectation and tension. Is there a way you could use this expectation for expressive purposes? Is there a moment you could break from the established trajectory and thwart listener expectation for expressive purposes?

1K) With a partner, create/improvise a piece of music for your primary instruments. At times the instruments should blend to form one sound. At other times they should function as two distinct voices. You may use whatever techniques you desire to achieve these effects.

Audio example 1K depicts one possible solution for piano and guitar. In the sample solution, students build a piece around a single sonority. The instruments blend throughout most of the piece. For the opening texture, the instruments play in a similar register and play the same gesture together, creating the effect of blending. In the second major section, the instruments play different rhythms but similar gestures. Each instrument can be picked out of the resultant texture; however, they also work together to

achieve a composite effect. They can be perceived as a single soundscape because of this gestural similarity; the instruments are performing the same basic role. The third section of the piece presents what amounts to a melody-and-accompaniment texture. During this section, the instruments demonstrate the most independence. The piano performs rolling arpeggios, while the guitar performs a solo lead line that maintains rhythmic independence from the piano. Each instrument is clearly differentiated from one another and functions in different roles in this section. The fourth section returns to the opening texture and the piece closes with a variation of the second section, albeit in a lower register and with freer treatment of rhythm.

Feedback 1K: Are there different ways you could achieve blending? For example, instead of the instruments playing simultaneously, what if they led into one another such that the end of one instrument playing and the beginning of the next were indistinguishable? Could different kinds of blending be achieved if the harmonic content of the piece were changed? Could extremes of register also affect the extent to which the instruments blend?

Semester 2 Assignments

2A) Play the class a musical passage, for example, the opening chord of “The Infernal Dance of King Kashchei” from Stravinsky’s Firebird. Have them identify the pitches and instruments used in the sonority and have them attempt to recreate the sound as a class.

In previous assignments, students developed awareness of color and texture. Here students identify specific instrumental colors, voicings, and harmonies, and attempt to reproduce these sounds on their instruments. The exercise functions like dictation, but in

addition to recognizing pitches and rhythms, students must also recognize instrumental color, dynamics, and register. Assuming the class does not have a full orchestra at its disposal, students may even need to develop creative ways to communicate the sonorities and voicings using the available instruments.

Feedback: What is the lowest note in the sonority? What is the highest note? What instruments are playing these notes? In what range are these instruments playing their notes? How does placement of a note in an instruments register affect the sound and the overall color and affect of the sonority? Try using the extremes of instrumental ranges to voice the sonority and notice how this affects the result. Are there certain instruments that could double or stand in for other instruments? For example, what could stand in for the bassoon? Are there certain instruments that can be made to sound like a bassoon? Are there certain registers where this happens more readily than others?

2B) “Explore a traditional instrument (or group) of your choice for a range of non-traditional (and non-destructive) sounds it can produce. Use those sounds in a composition of 60 seconds that has at least two clearly contrasting musical ‘themes’: either begin with one and musically ‘evolve’ away from and toward your second and contrasting idea at the very end of the piece, or have two sections that each begin with one of your ‘themes’ that are then ‘developed.’ Whichever approach you chose, it should be amply clear to your audience.”

(Regelski 2002, 33)

Audio example 2B1 demonstrates a theme that evolves into a contrasting idea.

Audio example 2B2 demonstrates two sections that each begin with a theme and

are then developed. Students explore ways to define form in the absence of traditional pitch relationships using color, dynamics, and texture. In addition, instructors could require that students develop a pre-compositional schematic to aid in the performance of their piece. The students could then be graded on the effort they put into their schematic as well as how well they adhere to their own plan in the performance of their composition.

Feedback 2B1: This is great; it is easy to distinguish between the two ideas. It's great the ideas are also related by similarity of gesture; they go together organically. What parameters remain consistent between the two ideas and what parameters are different? If you were to distinguish the two ideas even more how could you do this? What elements could you vary?

2C) Students are given a short melodic fragment. Have the class improvise a piece together using overlapping repetitions of the fragment.

Students explore canons. The class could also discuss ways to vary the fragment while retaining its essential character. Students might reference fugal development technique and might suggest stretto, transposition, inversion, retrograde, augmentation, or diminution. This might also spark a discussion of harmony and voice leading. In addition, this activity promotes synthesis of many different areas of musicianship including performance, ear training, and knowledge of counterpoint and harmony. In the case of this exercise, instructors might ask students to listen to a piece of music and ask them to emulate the techniques found in that piece. The instructor could then evaluate the student based on how well they adhere to that particular technique. Suggested pieces for

emulation could include excerpts from Steve Reich's *Music for 18 Musicians*, a fugue by J.S. Bach, or a piece for Javanese Gamelan. Students could be required to use graphic notation to plan their piece.

Feedback: Which instruments/timbres sound the best when performing overlapping statements of the fragment? Which transpositions sound best together? Are different harmonies suggested depending on where the overlapping statements begin? How does the composer treat overlapping repetitions? In what ways does repetition allow the piece to “develop”?

2D) Divide the class into small groups/ensembles. Have them improvise a piece starting with an improvised two-note motive. The goal is to converse with one another and develop the motive throughout the course of the piece.

In order to converse musically, students could try varying some element of the motive. Students may change the rhythmic profile of the motive (e.g., if the violinist plays short-long then the cellist could play long-short, short-short, or long-long). Students may retain the rhythmic profile of the motive but change the pitch content. If the contour of the motive was low-high, students could reverse this (i.e., high-low) or change the contour profile to high-high, low-low, or high-low. Similarly, students may preserve the dynamic profile or alter it in some way. By changing only one element of the motive, musical dialogue begins to occur. In addition, instructors could introduce variation techniques such as inversion, retrograde, augmentation, and diminution.

Feedback: In order to get the class started with improvising, instructors might suggest basic emotional states (happiness, anger, sadness, etc.) to help spark student creativity.

Instructors might mention that the goal is for students to engage in musical dialogue with one another; thus, listening to one another is vital. Students could start by imitating one another. They don't have to recreate phrases note for note, but they should do their best to maintain the general character of the idea. Once students are comfortable imitating ideas, have them imitate each other in "conversation." For example, the first student will play a two-note motive and the second person will imitate the idea but change something about it such that the idea evolves slightly. Have students discuss ways to vary the idea. Try changing just one parameter of the initial motive, allowing the music to evolve while also maintaining semblance of the previous idea.

2E) Break the class into groups of four to five students. In secret, assign each group a different triad or seventh chord. Each group develops three interesting and unique voicings for the assigned chord to be played for the rest of the class. The class must determine the quality of the chord and also critique the voicing.

Students are restricted harmonically but free to make decisions with respect to spacing, color, register, and dynamics. This encourages exploration of instrumental timbre and balance through orchestration. In addition, the activity reinforces knowledge of triads and seventh chords. Determining chord qualities and functions serves as a miniature dictation exercise within the activity. As a supplemental assignment, the class could peruse orchestral scores to determine how different composers orchestrate different sonorities, sparking a discussion of orchestral balance and voicing. Students could then revise solutions to the original assignment to incorporate concepts they learned through supplemental score study (e.g., concepts of doubling, register, spacing, etc.). Instructors

might ask students to study the voicings of a particular composer and then grade student solutions based on how well they emulate those particular voicings. Instructors could incorporate a variety of styles as examples (Palestrina, Beethoven, Debussy, Duke Ellington, Jimi Hendrix, the Beatles).

Feedback: Is the chord a triad or a seventh chord? Is the chord presented in root position or as an inversion? Try playing one of the voicings with different dynamics. Does this change the effect of the voicing? Try experimenting with different inversions of the chord. Try creating voicings that use different kinds of spacings. Try a close voicing and a voicing that is as open as possible. How does this affect the way you perceive the chords? What types of spacings do other composers use? How does this spacing differ among composers? How does voicing and instrumentation affect the way the chord is perceived?

2F) Compose an eight-measure vocal exercise that uses only two pitch classes (Robinson 1997, 38).

Students explore the musical potential of two pitch classes. Robinson (1978, 38) writes, “this strategy would allow students to develop and refine their listening, performance, notation, and dictation skills and also offer them the opportunity to exercise their creative and musical thinking skills.” Figure A.3 illustrates a sample solution to the activity.

schematic to aid in their performances, and use this as a means of evaluation (how well do students adhere to their schematic).

Feedback: How would you describe your piece formally? Are there other ways you could vary your motif besides the ones that you've chosen? Listen to some of the music by your classmates. What parameters have they decided to manipulate in order to delineate form?

Semester 3 Assignments

3A) Break the class into partners. Have each pair compose a melody and a second-species counterpoint above the melody. The students should adhere to whatever counterpoint rules that were taught in their particular school's counterpoint classes. Students should complete the exercise first by ear, and then write out their responses for evaluation.

Similar to traditional counterpoint exercises, this activity is closed with respect to most parameters. In the case of this activity, students must perform the task first entirely by ear and thus completely auralize their knowledge of theoretical counterpoint rules. Thus, this activity demonstrates a way to turn traditional theory learning into “sound” learning; promoting thinking “in” as opposed to “about” music. In addition, this exercise provides the basis for synthesizing many elements of musicianship (ear training, theory, performance) within a single activity. The written response then provides an opportunity for a graded assignment as instructors have something concrete to grade and return to their students.

Feedback: You could try first memorizing the melody and its characteristics. What is its contour? Describe the motion of the melody: is it stepwise or does it skip? Attempt to compose a counterpoint only after you have familiarized yourself with the *cantus*. You could try playing melodies that sound wrong to get an idea for the sound of the rules. Once you become familiar with the way counterpoints are not supposed to sound, it might make it easier to catch or listen for these things when listening to the counterpoints of your classmates. For example, try playing a counterpoint entirely in contrary motion, or one that follows a similar contour as the *cantus* throughout the excerpt. Try playing in parallel perfect intervals and hear what this sounds like. Not only will your ear become more accustomed to these sounds, making it easier to catch mistakes when listening to “correct” counterpoint, but this kind of ear training will also help in other instances. For example, parallel perfect-interval movement is common to much music outside of the common-practice period such as medieval music, 20th-century compositions, or modern jazz writing.

3B) Compose a piece for your primary instrument in rondo form. The piece must cadence in at least four closely-related keys. Devise graphic notation to chart the course of your piece.

This exercise tests knowledge of tonal harmony and modulation. Students must understand closely related keys and how to determine them from given starting keys. In addition, students must demonstrate proficiency in tonicization and/or modulation and techniques used to achieve this. All of these skills are then auralized. The activity synthesizes performance, written theory, and aural skills. Graphic solutions should show

various key areas and techniques used to arrive at a cadence in those areas. This exercise could be expanded if instructors specify a certain stylistic period to be emulated. As prompted in the exercise students could be asked to cadence in four closely-related keys according to common-practice techniques after Beethoven or Mozart. However, they could be asked to listen to a piece such as *Phrygian Gates* by John Adams and arrive at various keys using minimalist techniques found in this piece. Similarly, they could be asked to listen to *La cathédrale engloutie* and emulate the techniques that Debussy uses to arrive at different keys. Students could then be graded on how well their schematics and performances demonstrate understanding of a composer's particular stylistic idiom.

Feedback: What are closely related keys? What are some methods of arriving at these keys? What is a pivot chord? What is a secondary dominant? What is the difference between tonicization and modulation? Are there other methods? What would happen if you cadenced in one key and then began the following phrase or section in a new key (i.e., direct modulation). If you play an instrument that is unable to play chords, what notes might you emphasize to bring about the sound of a modulation? Try various techniques for modulation and see what you like best.

3C) *Create a piece in binary form. Develop graphic notation to aid in your performance. Play your piece for the class and have them determine the form.*

This activity tests students' knowledge of binary forms and their ability to communicate this knowledge through sound. Thus, the exercise combines ear training with written theory and performance. Students show basic harmonic fluency by establishing a formal design that demonstrates correct cadences and tonicizations. Sample solution 3C consists

of two parts (||:A:||:BA':||) each consisting of two phrases. Each part is repeated; the form is of the “two-reprise” variety. The first phrase of A ends on a half cadence; the second phrase tonicizes the dominant. This harmonic openness makes for a continuous binary. The second half also consists of two phrases. The first, B, begins away from the tonic and ends with a half cadence; the second, A', ends in an authentic cadence on the tonic. It also marks a return to the material of A. Thus the form is of the rounded variety. In addition, the cadential gestures that end each reprise are nearly identical, providing the piece with a musical “rhyme.” Thus, we can call the form balanced as well. The solutions depicts a continuous rounded binary form that is balanced.¹

Feedback: Are all binary forms the same? What are some decisions you will have to make when writing the piece? Is the form sectional or continuous? Is it a simple binary? Is your form balanced? Is it rounded? What is the difference between a rounded binary and a ternary? Could you make an argument for either form? What role does key structure, harmony, tonicization, and modulation play in your composition?

3D) As a group, improvise a four-part setting of the following progression. Complete the exercise entirely first by ear and then write out your solutions.

I ii6 IV V V7 vi V/V I64 V I

This exercise provides opportunity for students to synthesize a variety of topics. Students must demonstrate proficiency in tonal harmony and voice leading. The activity provides a way to turn theory learning into “sound” learning, making musicianship fully functional. While the exercise focuses primarily on idiomatic pitch concepts, instructors may also

¹Terms used to describe this solution are used in agreement with Laitz’s *The Complete Musician* (2012a).

encourage students to make solutions more musical by way of dynamics, phrasing, timing, and timbre. By focusing on all parameters as opposed to purely pitch, the activity develops ensemble playing skills (blending). Written solutions may be evaluated by instructors for a grade.

Feedback: Are there common notes between chords? Are there any parts that are already written given the chord symbols? What should the lowest voice do? What should the top voice do? What are the easiest notes for the middle voices to do? Is there easy stepwise motion or can a common tone be held? What notes will need to be doubled? What about dynamics and phrasing? At what point in the chord progression is there the greatest amount of harmonic tension and why? Are there things you could do dynamically or with timing or phrasing that could help to heighten this harmonic tension? Think about ways that you could make the progression sound more like music by discussing and incorporating elements of color, dynamics, phrasing, tempo, etc.

3E) In a small group (3–5 students), improvise a polyrhythmic piece that uses repetitions of short rhythmic ideas. Compose the piece by ear and record it. After these first two steps have been completed, have the students notate their compositions individually using traditional staff notation. Have the class compare their solutions.

The exercise tests students' ability to hear and construct polyrhythms. More importantly it stretches their knowledge and proficiency in Western notation. The activity is essentially an embellished rhythmic dictation. Audio example 3E demonstrates one possible sonic solution. Figure A.4 demonstrates one possible notated solution.



Figure A.4 Graphic solution to assignment 3E.

Feedback: Have one student begin with a repeating motivic fragment and then begin to layer parts on top of that. What meter signature should you use to notate this music? Are there multiple ways to notate the music you have written? Is one of the two solutions more effective at communicating the rhythms? How do the two approaches differ? Could these different notational interpretations affect the way a listener might perceive the piece or the way a performer might play it? Are there advantages or disadvantages to either approach? What does this tell you about Western notation? How might your notational choices affect a performance of this music by somebody other than yourself?

3F) In a small group, improvise short melodic figures that establish the key of A major, and then modulate to the key of E major using sequences.

This exercise combines ear-training with improvisation, written theory, and performance. Students are taking dictation, processing this dictation and determining what course of action to take, and then implementing this on their primary instrument. In other words, students must hear what other students are playing, immediately translate that into syllables/scale degrees, and then follow with a new motive that flows logically with what came before. In addition, students should be encouraged to make the solutions as musical as possible; attention should be paid to dynamics, phrasing, articulation, tone color, etc.

verbatim, but harmonizes it as though in C major with a tonicization of G major ending the second measure. The sixth variation presents and projects the melody into G Phrygian. The solution concludes with a restatement of the initial G-major setting. These six variations present only a small cross section of the possible solutions to this assignment. Students might project the melody into any of the seven modes, or they might choose to project the melody into the octatonic scale. Students could also develop their own scales and structures, and project the melody into these. In addition, instructors might ask students to develop reharmonizations in accordance with the techniques of specific composers and then evaluate students based on how well they adhere to these specific stylistic guidelines. For example, student could be asked to harmonize the melody in the style of Beethoven, Ravel, Berg, or even the Beatles.

Feedback: Keeping the melody verbatim and assuming is it in the key of G major, how many different ways can you set this melody using diatonic chords? What if you introduced chromaticism into the harmony? Are there chords you could use to make the melody sound like it was in a relative key? How would you need to change the melody to make it a parallel key (or mode)? What if you projected the melody into different scales? Does the accompaniment necessarily have to be in the same key as the melody?

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