

The Pedagogical Use of Improvisation

in Western Art Music

by

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ABSTRACT

Improvisation, or extemporization, has always played an important role in all genres of music across the globe. In Western art music alone, improvisation has been used in many settings throughout history, such as composition, public extemporization, and ornamenting existing notated music. Why is it then, that improvisation is not an important part in the education of the Western Art Music tradition?

Introducing improvisation to music education develops a more well-rounded musical ability, a firmer understanding of musical concepts, and a clearer insight to the composition of music. To examine this issue, I discuss a number of scientific explorations into the use of improvisation. First, new technology in the study of the brain gives insight into how the brain functions during improvisation. Adding to this evidence, I contextualize the use of improvisation into four scientifically developed educational scenarios based on how humans most effectively learn information and skills. To conclude, the discussion then shifts to simple exercises designed to assist musicians and teachers of any skill level in utilizing improvisation in practicing, lessons, and performance.

To prevent students of music from reaffirming a continuously narrowing viewpoint of music's creation, cultural implications, and performance, educational systems should make an effort to teach more than just the preparation of increasingly complex scores. Improvisation is not only a solid foundation for understanding the roots of western music's own musical traditions, but also a gateway to understanding the musical traditions of the world.

DEDICATION

This paper is dedicated to my family and friends that have given me unconditional love, support, and guidance throughout my extensive collegiate journey. I especially would like to thank my mother Jeanine, my father Tom, and my brothers Aaron, Josh, and Sam.

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My time at Arizona State University has been graced by many knowledgeable and influential professors and role models. Though I have many to thank, I must specifically mention the members of my committee, Dr. Rodney Rogers and Dr. Christopher Creviston, and most especially the committee chair and my private instructor, Dr. Albie Micklich, whose support and generosity has made my time here at ASU not only challenging, but extremely gratifying.

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CHAPTER ONE

INTRODUCTION

From the jazz musician conjuring memorized “licks” and patterns, the rock guitarist “shredding” over a simple chord progression, to the ornamentation of Baroque music, and the cadenzas and keyboard preludes of the common practice period, improvisation has always been a part of every genre and form of music. In Western art music alone, improvisation, or extemporization, has played many roles throughout its history. From the beginning of notated music through the Classical period, improvisation was used widely in public performance situations; organists and keyboardists would even have improvisation contests in which they compose fugues on the spot. Another principal role of improvisation in a public performance setting was embellishing and ornamenting the original notation. In the Classical period, there was also much emphasis placed on the performer improvising the cadenza of a concerto. The Romantic period continued to emphasize the use improvisation through performers/composers such as Beethoven, Hummel, Chopin, and Liszt, all of whom were anxious to show off their prowess and musical genius to the concert going public. With the emergence of the twentieth century came new opportunities for improvisation. Pianists were needed to improvise musical settings to silent films, and a new art form materialized which hastened the role of improvisation in Western culture: jazz.

Though extemporization has played an important role in the performance—and indeed the composition—of music throughout history, the educational value of

extemporization in the realm of the Western art musical tradition seems to have waned. American colleges and conservatories are brimming with highly trained musicians who, despite great technical facility, are at a loss when asked to improvise. This situation contradicts that of other musical traditions, such as jazz, Native American music, Jewish traditional music, almost all popular music, and many other world music traditions in which musicians learn by ear rather than by notation. If formal music education continues to place all of its efforts into the preparation of increasingly complex scores, and persists to neglect the improvisational qualities inherent in the rest of the world's musical traditions, and indeed the roots of its own traditions, students will continue to develop an ever narrowing view of the creation, cultural implications, and performance of music.

Implementing improvisation in music education at all levels (early childhood education through college and/or conservatory education), students will develop more well-rounded musical skills, a firmer understanding of musical concepts, and a clearer insight into the compositional process. This concept of “improvising to learn music,”¹ could potentially tie together all musical knowledge into complex and interrelated conceptual infrastructures rather than constructs of separately categorized facts or skills.

These ideas only touch upon the research and effort put into the study of improvisation as an educational tool in music. For the rest of this paper, I will further expound on these ideas using a number of scientifically developed models. To begin with, new technological insights into the brain function of performers and audiences alike while performing or listening to improvised music, as compared to that of notated music,

¹Patricia Shehan Campbell, “Learning to Improvise Music, Improvising to Learn Music,” in *Musical Improvisation: Art, Education, and Society*, ed. Solis, Gabriel, and Bruno Nettl (Urbana and Chicago: University of Illinois Press, 2009), 120.

give us concrete reasons to teach improvisation to music students. I will then explore pedagogical applications of improvisation based on four scientifically developed concepts aimed at providing alternative models of education. To conclude, I will guide teachers and students alike in simple exercises designed to implement improvisation into their technical and analytical development as a musician, and provide models in which to apply these techniques into performance practices.

CHAPTER TWO

THE EFFECT OF IMPROVISATION ON THE BRAIN

Studying the perception and cognition of music is one of the earliest areas of research in experimental psychology.² This research has been furthered in recent decades by the development of new technologies and procedures such as the electroencephalograph machine (EEG), positron emission tomography (PET), and functional magnetic resonance imaging (fMRI). Since the development of these machines and procedures, many studies have sought to measure the effect of music on the brain and the body. Two such studies were specifically focused on observing the brain while improvising music versus playing memorized music or reading notated music. Both of these studies used different procedures, monitored subjects with different devices, and were looking for slightly different insights on the brain's function during improvisation. However, in reading through and comparing both studies, it becomes clear that on some basic levels they produced similar results. To explore this further, an individual look at each investigation is needed.

Improvisation and Electrical Activity in the Brain

The first study is a collaboration between musicians David Dolan and John Sloboda from the Guildhall School of Music and Drama in the UK, Professor of Natural Sciences Henrik Jeldtoft Jensen from Imperial College in the UK, neuroscientist Björn

²David Dolan, John Sloboda, Henrick Jeldtoft Jensen, Björn Crúts, and Eugene Feygelson, "The Improvisatory Approach to Classical Music Performance: An Empirical Investigation into its Characteristics and Impact," *Music Performance Research* 6 (2013): 1-38, accessed April 19, 2014, [http://mpr-online.net/Issues/Volume%206%20\[2013\]/MPR0073.pdf](http://mpr-online.net/Issues/Volume%206%20[2013]/MPR0073.pdf).

Crúts from Brainmarker BV in The Netherlands, and musician Eugene Feygelson from King's College in the UK.³ The collective goal of these scientists and musicians was to examine the effects of improvisation not only on the pre-composed music being played, but on the performers and audience members alike. To guide the study, they posed two research questions:

1. Are there systematic differences between prepared and improvised performance in (a) measurable performance characteristics (changes over time of duration, dynamics, timbre and the inter-relations between them); (b) subjective audience responses (ratings and verbal descriptions); (c) objective responses of both performers and audience members measured by electroencephalograph (EEG) evidence?
2. Do these differences suggest a heightened response to improvised performances?⁴

In keeping with the scope of this document, I will focus solely on the results from the EEG and audience/performer responses (research question 1 (b), 1 (c), and 2), rather than specific analysis and comparison of the music performed (research question 1 (a)).

The study was conducted as a live performance on March 30, 2012 in a studio that is regularly used as a chamber music venue. The performance included a flute, viola, and harp trio that had been trained extensively in applying improvisation to classical forms and repertoire, and regularly performed together in professional settings. The audience consisted of 14 people, some students and staff from the schools involved in the study, others simply interested in hearing live chamber music. To collect the desired data, the three musicians, as well as two audience members, were connected to an EEG.⁵ An EEG is a painless procedure that uses flat metal discs (electrodes) attached to the scalp to

³ Ibid., 1.

⁴ Ibid., 6.

⁵ Ibid., 6.

detect electrical activity in your brain.⁶ Questionnaires were also given to audience members so that they could provide responses to the music during the concert.

The concert consisted of five separate pieces of music. Each work was to be performed twice consecutively, once in a prepared manner, and once in an improvised manner. The order of the prepared versus improvised versions was random. Only the musicians and one of the conductors of the study knew which playing of the piece was prepared and which was improvised. This is the exact program used, along with the order in which prepared versus improvised versions were played:

1. Ibert: *Andante espressivo* from *Interlude* for flute, viola, and harp (prepared mode followed by improvised mode)
2. Telemann: 3rd movement, *Adagio*, from the Trio Sonata in G minor TWV 42:g7 (improvised mode followed by prepared mode)
3. Group Improvisation: semi-tonal in ABA form (improvised mode followed by prepared mode)
4. Ravel: Minuet from the *Sonatine* for piano, arranged for flute, viola, and harp by Salzedo (prepared mode followed by improvised mode)
5. Group Improvisation: tonal, in ABA form (prepared mode followed by improvised mode)⁷

The audience was given time between each separate piece of music to compare the performances of both versions on five different characteristics: improvisatory in character, innovative in approach, emotionally engaging, musically convincing, and risk-

⁶ “Tests and Procedures,” Mayo Clinic, last modified May 19, 2011, accessed April 18, 2014, <http://www.mayoclinic.org/tests-procedures/eeg/basics/definition/prc-20014093>.

⁷ David Dolan, John Sloboda, Henrick Jeldtoft Jensen, Björn Crúts, and Eugene Feygelson, “The Improvisatory Approach to Classical Music Performance: An Empirical Investigation into its Characteristics and Impact,” *Music Performance Research* 6 (2013): 1-38, accessed April 19, 2014, [http://mpr-online.net/Issues/Volume%206%20\[2013\]/MPR0073.pdf](http://mpr-online.net/Issues/Volume%206%20[2013]/MPR0073.pdf).

taking.⁸ The rating of these characteristics was done using a Likert scale (a scale commonly used in research involving questionnaires) which ranged from 1 (“not at all/none”) to 6 (“totally/completely”).⁹ This questionnaire also allowed for the audience’s own written comments.

The results of this experiment were conclusive. First, the subjective response gathered from the audience questionnaire (seen in Figure 1) is remarkably one-sided. The collective audience rated the pieces that were improvised higher on every occasion and in every category.¹⁰ This was accompanied by the written comments, which overwhelmingly supported these conclusions. It should be noted, however, that though the results for this part of the study are largely for the improvisatory versions of these pieces, the audience was not 100% convinced. These results are based entirely on the subjective opinions of an audience, about whom we know almost nothing, that heard a one-time performance played by human beings, who can never be perfect and are subject to many changes and outward distractions. To add to this, the characteristics with which the audience was asked to respond were not entirely without bias. The study could have easily included more judicious topics to analyze the musical experience (such as: balance, refinement, togetherness, cohesiveness, etc.). Nevertheless, as music is a largely subjective art form in itself, and is most assuredly judged in this manner on a daily basis, these particular results have some weight within the realm of this study.

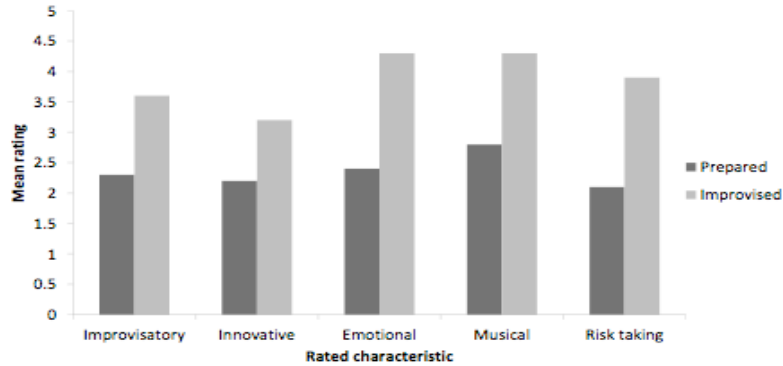
8 Ibid., 8.

9 Ibid., 8.

10 Ibid., 10.

Figure 1

Average scores of rating scales from Questionnaire data, combined across audience members and performances.¹¹



What is most surprising, and most relevant to this document, is the readings from the EEG. Once again, the measurements were calculated with the mean levels of brain activity from both the players and the listeners during both the improvised and the prepared pieces. Two types of brain waves were examined in this study: alpha waves (equated with cortical inhibition), and beta waves (equated with excitation).¹² There were a number of significant changes to the musician's brain activity found while improvising. First was increased inhibitions in Brodmann Area 9 (part of the dorsolateral prefrontal cortex) which is actively involved in sustained attention, working memory, and inhibition of responses (Figure 2A).¹³ Accompanying this is a lesser, but still noteworthy, decrease in inhibitions in Brodmann Area 19 (left occipital cortex) involved in visual processing (Figure 2A).¹⁴ There was also increased excitation found in Brodmann Area 24 (the anterior cingulate gyrus/ventral anterior cingulate cortex) which is active in motivation

¹¹ Ibid., 10.

¹² Ibid., 10.

¹³ Ibid., 10.

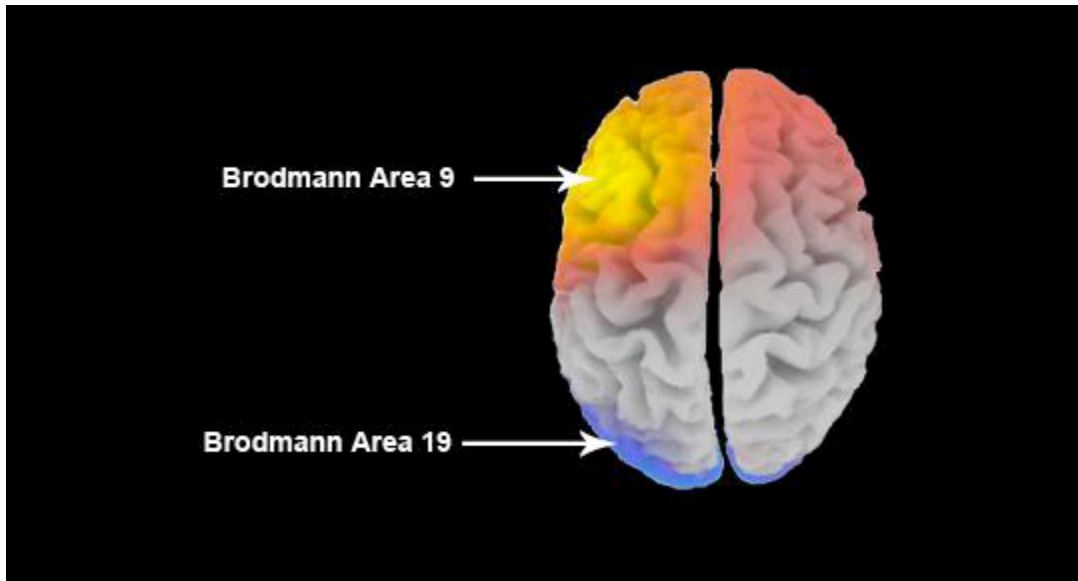
¹⁴ Ibid., 10.

and will (Figure 2B).¹⁵ To reiterate, these findings suggest that improvising musicians manifest more activity in cortical areas corresponding to free will, motivation, visual processing, planning, and coordination of movement, while decreasing cortical activity in areas associated with prolonged attention and working memory.¹⁶

Figure 2

Areas of significant increase (red and yellow) and decrease (blue) in brain activity.¹⁷

A. Alpha Waves (Inhibition)

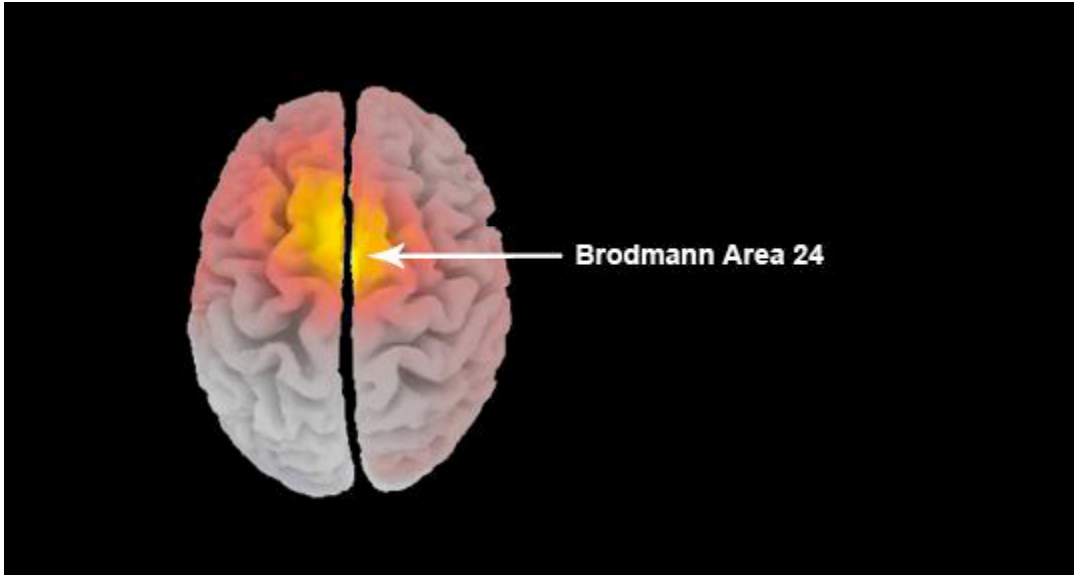


¹⁵ Ibid., 11.

¹⁶ Ibid., 11.

¹⁷ Ibid., 12.

B. Beta Waves (Excitation)



What makes these findings more significant is the comparison of EEG readings between the performing musicians and the audience; they were almost identical.¹⁸ The audience members, like the performers, were more engaged during improvised sections of the concert than during prepared sections of the concert. This finding not only brings together the performing musician and the audience in a way we had not previously imagined, but it substantiates what was mentioned as subjective data collected on the questionnaires mentioned earlier (Figure 1).

To bring contrast and context to this study, the next chapter will work through another study with similar goals, but differing methods. In contrast to the first study mentioned in this paper, which used an EEG to measure electrical impulses in the brain, this exploration was done using an fMRI, which measures brain activity by observing

¹⁸ Ibid., 12.

changes in blood flow. This process is more intrusive for a musician than the previous study, as it must be done outside the context of a public performance and the machine used in this procedure is large and unmovable. However, the results prove to be surprisingly congruent with the previously discussed research.

CHAPTER THREE

THE EFFECT OF IMPROVISATION ON BLOOD FLOW IN THE BRAIN

This study was a collaboration between Dr. Charles J. Limb, the Associate Professor of Otolaryngology-Head and Neck Surgery at John Hopkins University in Baltimore, Maryland, and Dr. Allen R. Braun, Chief of the Language Section, Voice, Speech, and Language Branch of the National Institute on Deafness and other Communication Disorders in Bethesda, Maryland.¹⁹ These two scientists set out to explore the brain activity involved in the spontaneous generation of music (improvisation). To explore improvisation, a sequence of extremely complex actions, the researchers had to narrow their focus in a number of ways. First, they naturally looked to jazz, the genre of music most commonly associated with improvisation in Western culture. Next, they set up a systematic approach to observing “over-learned” music (which I will refer to as memorized music, as the term over-learned implies a possible bias against notated or memorized music) versus improvised music.²⁰ Finally, this system was further divided into two different levels of difficulty, “Simple” and “Jazz” (more complex).²¹

Six highly skilled jazz pianists were studied during this experiment. They were asked to do four separate tasks while under observation of the fMRI, starting with the most simple and moving to the most complex. The first task was to play a memorized

¹⁹ Charles J. Limb and Allen R. Braun, “Neural Substrates of Spontaneous Musical Performance: An fMRI Study of Jazz Improvisation,” *PLoS ONE* 3, no. 2 (February 2008): accessed April 21, 2014, 10.1371/journal.pone.0001679.

²⁰ *Ibid.*, 1.

²¹ *Ibid.*, 2.

scale (Figure 3A) in quarter notes on the keyboard provided.²² The musician was then asked to play an improvisation (Figure 3C) based entirely on the notes from the same scale as before, and still using only quarter notes.²³ Next came the “Jazz” or more complex processes. The subject was asked to play a melody, which had been memorized before scanning (Figure 3B), over blues chord changes accompanied by a pre-recorded jazz quartet.²⁴ Finally, the musician was asked to improvise a melody (Figure 3D) over the same blues chord changes accompanied by a pre-recorded jazz quartet.²⁵

Figure 3
Paradigms used by subjects while in fMRI.²⁶

MEMORIZED

A) Scale Control



22 Ibid., 2.

23 Ibid., 2.

24 Ibid., 2.

25 Ibid., 2.

26 Ibid., 2.

B) Jazz Control

Musical notation for Jazz Control exercise B, consisting of four staves of music in 4/4 time. The first staff is labeled Cmin7. The second staff is labeled Fmin7. The third staff is labeled Cmin7, Dmin7^b5, and G7. The fourth staff is labeled Cmin7.

IMPROVISED

C) Scale Improvisation (Example)

Musical notation for Scale Improvisation (Example) exercise C, consisting of two staves of music in 4/4 time. The first staff is labeled C major.

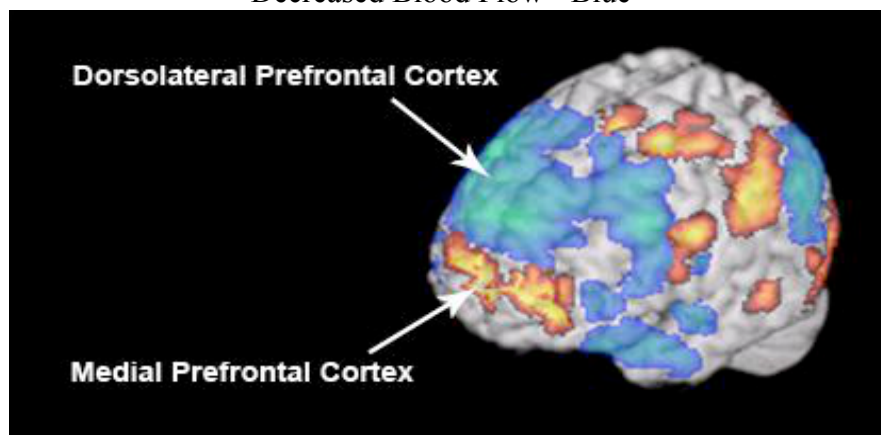
D) Jazz Improvisation (Example)

Musical notation for Jazz Improvisation (Example) exercise D, consisting of four staves of music in 4/4 time. The first staff is labeled Cmin7. The second staff is labeled Fmin7. The third staff is labeled Cmin7 and Dmin7^b5. The fourth staff is labeled G7 and Cmin7.

The results for this study were thoroughly conclusive. Changes in the prefrontal cortical activity of the brain produced a distinguishing pattern when the musicians were improvising as opposed to playing memorized music.²⁷ This unique pattern came in the form of extensive deactivation to the dorsolateral prefrontal cortex and extensive activation to the medial prefrontal cortex.²⁸ These changes can be observed in Figure 4.

What do these changes of blood flow in the brain suggest? The medial prefrontal cortex is associated with a large amount of functions. It is actively involved in most cognitive functions in pursuit of higher goals (such as education), in maintaining an overriding set of intentions while executing a series of diverse behavioral structures, as well as long-term multitasking.²⁹

Figure 4
Increased Blood Flow - Red and Yellow
Decreased Blood Flow - Blue³⁰



The lateral portions of the prefrontal cortex that are deactivated during improvised

27 Ibid., 3.

28 Ibid., 3.

29 Ibid., 4.

30 Ibid., 5.

playing are associated with cognitive functions such as planning and problem solving.³¹

To add to this, the observed changes in blood flow were almost identical in both the “Simple” and the “Jazz” improvisations.³² This means that the same results in blood flow occur no matter how complex or simple the extemporization.

Though both of these studies observed different functions of the brain, musicians playing different genres of music, music in different contexts, and even the functioning of the performer’s brain versus the audience’s brain, they both yielded similar results that provide clear benefits to the use of improvisation in developing musicianship. We now see that our brain activates cortical areas associated with free will, planning, and motivation while improvising. It goes without saying that both self motivation and planning play an essential role in musical training. It would be impossible to attain a high level of musicianship without utilizing these skills over many years.

Also notable, is the activation of cortical areas associated with complex, long-term multi-tasking. These qualities are vital to the growth of a musician. The act of playing music, in itself, involves many levels of complex tasks being performed simultaneously: pressing the right keys, applying the exact amount of embouchure pressure, controlling airflow, listening to and complementing those around you, watching the conductor, the list goes on and on. Another cortical activation worth noting is in the area of the brain corresponding to coordination of movement. Coordination is another trait essential to making music, because it is in coordinating our movements, from

31 Ibid., 5.

32 Ibid., 5.

fingers, to arms, to mouth, and to lungs, that music as we know it is possible in the first place.

If nothing else, the most basic conclusion we can draw from both studies is that the brain functions differently when improvising or listening to improvised music than when playing or observing memorized, notated, or simply prepared music. In fact, we now know that the musician uses entirely different systems within our brain when performing or observing either task. For many people, including myself, this reality alone is enough to strive for the implementation of improvisation in music education. Should it not be the goal of every musician to exercise the entirety of their functional brain, to utilize every skill they have the opportunity to develop? Would they not develop more well-rounded musical skills?

CHAPTER FOUR

IMPROVISATION IN EDUCATION

Most universities with a music program in the United States belong to a national accreditation agency which promote the teaching of improvisation. The National Association of Schools of Music (NASM) handbook 2013-2014, Section VIII.B.3.

Composition/Improvisation states:

Students must acquire a rudimentary capacity to create original or derivative music. It is the prerogative of each institution to develop specific requirements regarding written, electronic, or improvisatory forms and methods. These may include, but are not limited to the creations of original compositions or improvisations, variations or improvisations on existing materials, experimentation with various sound sources, the imitation of musical styles, and manipulating the common elements in non-traditional ways.³³

To add to this, there are many arguments by pedagogues, musicians, and philosophers alike that support the application of improvisation in the music classroom. In fact, it is rare to find a written argument condemning the use of extemporization. Some of the justifications for improvisation take root in genuine pedagogical experiments and experiences developed over years of teaching in this manner. Other arguments conceptualize paradigms in which to develop differing teaching methods. There are even arguments that promote improvisation for the sake of unbridled creativity alone. Though

³³ National Association of Schools of Music: *Handbook* 2013-2014 (Virginia: National Association of Music, 2013), 99-100, accessed April 18, 2014, http://nasm.arts-accredit.org/site/docs/Handbook/NASM_HANDBOOK_2013-14.pdf.

many of these ideas are legitimate and hold considerable weight in the musical community, perhaps the most sound information on this subject comes not from the music community alone, but has its roots in the learning sciences, an interdisciplinary field that draws on multiple theoretical perspectives and research paradigms with the goal of advancing knowledge and the application of knowledge about human learning and development.³⁴

Learning scientists have been building upon the research collected by cognitive scientists (interdisciplinary scientists studying mind and intelligence)³⁵ over the past four decades to form more meaningful and successful models of education than the “standard model” so commonly used in our classrooms today.³⁶ From this research, the learning sciences have developed four main focus points in which future educational models should be derived in order to give students a deep and useful understanding of their craft. To understand these concepts and their application to improvisation in an educational environment, I will now take an individual look into all four points.

1. The importance of deeper conceptual understanding, rather than superficial facts and procedures.³⁷

To illustrate this first concept, I invite you to imagine a music student just starting the journey of playing a musical instrument. After learning notes, rhythms, and other

34 University of Wisconsin-Madison Department of Educational Psychology, “About Learning Sciences,” accessed October 16, 2015, <https://edpsych.education.wisc.edu/academics/learning-sciences-area>.

35 Stanford Encyclopedia of Psychology, “Cognitive Science,” accessed April 19, 2014, <http://plato.stanford.edu/entries/cognitive-science/>.

36 R. Keith Sawyer, “Optimising Learning: Implications of Learning Sciences Research” (paper presented at OECD/CERI International Conference: “Learning in the 21st Century: Research, Innovation and Policy,” 2008), 2, accessed April 20, 2014, <http://www.oecd.org/edu/ceri/40805146.pdf>.

37 Ibid., 9.

technical building blocks of playing the instrument, the student is ready to play in a large ensemble. When entering the ensemble, the student is given a piece of music which gives them directions on exactly how to play every single note, from which dynamics to use, to what articulation is needed, to the duration of each note. Beyond these parameters, not much information is needed from this student to play within the ensemble. A few pitch alterations here and there, staying in tempo, and performing articulations correctly and with the rest of the ensemble, this student is now (more or less) successful at playing with this ensemble. But what picture does this approach paint for this young student? The student is given a very narrow view of the entire scope of what is taking place within this context.

Now imagine this same student, after learning the building blocks of playing the instrument, placed into a chamber ensemble devoted to improvisation. In order for this student to be successful, they must follow a completely different set of rules. There is no score giving prescriptive hints of what dynamics to play, articulations to use, or how long to play each note. In fact, they are not given any written notes at all. The student now has to rely on the contextual clues given by other members of the ensemble. Who is playing the root of the chord? What rhythm is the pianist playing? How long are the notes being played by the trombonist? How heavy are the articulations being played by the percussionist? In exploring these contextual clues, the entire construction of the piece of music unfolds. Starting music students with this more broad contextual view of music's construction is not only more engaging, but provides the student with a more informative and deeper conceptual infrastructure to build upon.

2. The importance of learning connected and coherent knowledge, rather than compartmentalized knowledge.³⁸

I have many times been in a symphonic band rehearsal in which the conductor poses a theoretical or historical question about the music being rehearsed to the ensemble. It was always a rather simple question, something everyone has successfully learned and regurgitated multiple times in theory and history classes. The conductor's question, in almost every case, is met with a room full of blank stares. The members of the ensemble have not been connecting the material from their classes with the music that is being played. The music, at this point, is nothing but notes on a page.

I remember being an undergraduate student and taking music theory courses, music history courses, and performing repertoire by the composers studied in these classes. During that time I had a great deal of difficulty applying what I learned in one class to another class, much less applying what I learned in my separate classes to my performances. I had categorized the knowledge I was acquiring into distinct and separate compartments.

Not until I became a graduate student, and was myself teaching undergraduate students, did I learn to appropriate these compartments of knowledge. I also realized at this time that I was not the only one having trouble connecting all of the dots. It was not just my lack of inquisitiveness that was the issue. Countless others had followed this path before me, and countless others are going to follow after me. There is an inherent flaw in the "standard model" of education being used.³⁹

38 Ibid., 9.

39 Ibid., 2.

Compare this compartmentalization with another example: learning to improvise a melody in the style of Mozart. Successfully achieving a feat such as this requires a considerable amount of knowledge. The performer must be aware of theory; Mozart's use of form, phrase structures, harmonic language, and how Mozart manipulated phrases and motives to generate melodic material. The performer must be aware of history; historical context provides typical performance practices, from the use of ornamentation, what the instruments of the time were capable of, down to the articulations and durations of notes. Lastly, the performer must have the wherewithal and the technical prowess to perform such a task. Combining these "separate" parts into one whole not only strengthens one's understanding of each concept, but builds a more solid foundation on which knowledge can be accrued.

3. The importance of learning knowledge in it's context rather than in decontextualized exercises.⁴⁰

All musicians and listeners of Western culture, whether they realize it or not, have experienced the tonal pull of an authentic cadence (a cadence ending in the V chord moving to the I chord). Yet, few musicians understand the power of a properly utilized authentic cadence like an improvising musician. It is true that in an American school of music every musician will learn how to analyze an authentic cadence. Most of these musicians will even learn how to properly compose and resolve an authentic cadence within the confines of a theory course. Certainly, every single musician will play or be a moving part of an authentic cadence.

⁴⁰ Ibid., 9.

This understanding, however, is similar to a presidential candidate participating in a presidential debate and only reading off of note cards. He/she may understand the issues, their historical and social context and ramifications, but this will prove utterly ineffective if they cannot support their claims when faced with challenging unrehearsed questions.

Improvising musicians have a deeper understanding of an authentic cadence simply because of the context in which they learned to use this device and the context in which they have the ability to utilize this common tool. The amalgamation of theory, composition, and performance into one contextual throng is something that cannot be learned sitting at a desk or reading music from a score. It is, however, something that all musicians can learn to do.

4. The importance of learning in collaboration, rather than in isolation.⁴¹

With this final concept, these models for meaningful education come full circle. The first example I discussed was about a young music student entering into his/her first ensemble experience. If students such as this enter into ensemble experiences in which they bury their concentration into ever increasingly complex and prescriptive music scores, then it does not matter how many people are around them, they are already learning in isolation. As a musician who has been playing in large university ensembles for many years, I have seen it hundreds of times: musicians so intensely burrowed into their music that they have no recollection of what is happening around them. After suppressing the feeble reaction of rage, I remember that I was there once; all of us were

⁴¹ Ibid., 9.

there once. Some of us were lucky enough to look up and escape the systematic standardization of a subjective, ever changing art form. Only after this realization can the social and cultural ramifications of music be present within the music being played, and within ourselves.

With the overwhelming number of musicians, teachers, universities, organizations, and scientific evidence supporting the use of improvisation, it is puzzling that improvisation has not become more widely utilized within our music schools. Recently, many of the hurdles impeding the incorporation of improvisation into our educational systems have been brought to light, such as the difficulty of standardizing a curriculum including improvisation, and the cycle of teacher training in North America not including improvisation.⁴²

Though these ideas raise legitimate concerns, in my opinion, the use of improvisation does not need to be standardized in the curriculum. Instead, improvisation can be used as a tool to reinforce and understand further the concepts and knowledge that are already in the standardized curriculum. The remaining chapters of this document will explore easy steps for teachers, students, and performers alike to begin improvising in a simple, effective, and technique-reinforcing way.

⁴² Lee Higgins and Roger Mantie, "Improvisation as Ability, Culture, and Experience," *Music Educators Journal* 100, no. 38 (December 2013): 38-39, accessed April 18, 2014, <http://mej.sagepub.com/content/100/2/38>.

CHAPTER FIVE

THE FIRST STEPS IN PRACTICING IMPROVISATION

For many musicians, if not most, who are trained in the Western Art tradition, learning to improvise can be a daunting task. It may seem that all previous practicing and technique building has done nothing to prepare them for extemporization. However, if you are already comfortable with scales, arpeggios, and with working out difficult technical passages, it should not take long to grasp the simple concepts presented in the next two chapters.

To embark on this journey, a musician should first concentrate on improvising in individual practicing. These warm-ups and technical exercises are an excellent way for a student to practice improvisation and technique building, a teacher to introduce improvisation to a student, and a performer to build a never-ending source of exercises to maintain and/or improve their technical and imaginative playing.

Before working through the first exercises, I believe it is important to remember the findings discussed in the third chapter, *The Effect of Improvisation on Blood Flow in the Brain*; no matter how simple or complex the extemporization, the same parts of the brain are activated. This finding not only supports the use of improvisation for musicians, but also reinforces what most musicians were taught since the first day they picked up their instruments: start slow and simple! To reinforce this, the first example (which is derived from a game in *Improv Games for One Player: A Very Concise Collection of Musical Games for One Classical Musician* by Jeffrey Agrell) is a great starting point

that is not only a long-tone warm-up, but a very simple way to begin the journey of extemporization.

Exercise 1 Long-Tones

Create a short piece using only long-tones.

Suggestions for Performance

1. Each note should last at least two beats, but can last as long as the musicians would like. Notes may begin and end at any point, at the discretion of the performer.
2. Start with an easily attainable set of intervals. I suggest first using a key signature and only playing diatonically within that major or minor key.
3. Make the music interesting by using expressive techniques such as dynamics, crescendos, decrescendos, varying vibrato, and silences.

Suggestions for More Advanced Studies

1. Whole steps and half steps can be used as transitions into the next selected interval.
2. For variety, begin using scales instead of a key signature (pentatonic, blues, whole-tone, octatonic, chromatic, etc.).
3. To add depth and difficulty, use specific intervals instead of scales or key signatures. Start simple and increase in difficulty (major and minor thirds, perfect fourths, perfect fifths, major and minor sixths, etc.).

4. Moving forward, play a long-tone composition using every interval you can imagine.

Figure 5
Example of Exercise 1
Long-tone exercise using two octaves of F Major Scale



This warm-up exercise is a fantastic way to begin a practicing session; 1) it warms up the instrument, body, and ears; 2) starts the practicing with concentrated listening to the tone produced and intonation; 3) works on using expression during held notes. To add to all of these benefits, it begins the instrumentalist and/or vocalist on the journey of improvising in a very slow and attainable manner. The use of long tones gives the musician time to think about upcoming change of the interval and how to perform it correctly in terms of clarity, tone, and intonation. In this way, the exercise is easily adjustable to the level of the musician using it. However, whether you are a beginner with not much more working knowledge than an F Major scale, or a professional using improvisation for the first time, I would still recommend starting very simply (as in Figure 5), and with the use of a metronome.

Once a musician has achieved a level of understanding and comfort with the long-tone warm-up exercise, other, more technically demanding improvisation exercises could

help further their abilities. The next exercise is not only for learning improvisation, but can be used to build technique in a myriad of areas from scales, interval studies, and arpeggios, to pitch and rhythmic patterns.

Exercise 2 Technique Building

This exercise is to be performed in conjunction with techniques already being practiced to help strengthen the technique, form a better comprehension of the technique, and use the technique in as many ways as possible. I will use scale studies as an example.

Steps

- 1) Using a metronome, play the scale (ascending and descending) in even quarter notes at a tempo that is easily achievable (Figure 6A)
- 2) In the same manner, play the scale again, this time changing articulations, articulation patterns, and accenting notes at will (Figure 6B).
- 3) Keeping the quarter-note pulse, and now using one consistent articulation, play scalar segments (two or more adjacent notes) from the scale at will. You may use large leaps to jump to different parts of the scale in beginning new scalar segments. This may last as long as you need, in order to feel comfortable in achieving this task (Figure 6C).
- 4) This time while playing the original scale, keep the articulations the same, but change the rhythms used at will, and even add in rests at will (Figure 6D).
- 5) Lastly, begin to merge the different scalar exercises to create ever-changing scale

studies. You could change articulation patterns and play scalar segments, change articulation patterns and play differing rhythmic patterns, play scalar segments using differing rhythmic patterns, or attempt to merge all exercises into one improvisation (Figure 6E).

Figure 6
 Example of Exercise 2
 Technique Building Exercise Using C Major Scale

A) 

B) 

C) 

D) 

E) 

Variations on Exercise 2

1. Scales in Intervals

Practicing scales in intervals (3rds, 4ths, 5ths, etc...).

2. Arpeggios

Use only notes within arpeggio and tertian structures (instead of full scale, use only scale degrees 1, 3, 5, and 7).

3. Patterns

Play a pattern within the diatonic scale and sequence it throughout the instruments range.

4. Scales

Use scales without a key signature (pentatonic, blues scale, octatonic, whole-tone, chromatic, etc.)

Taking Exercise 2 a Step Further

1. Diatonic

Once comfort is reached within a key signature, use the scale, intervals, arpeggios, and differing patterns in combination to create all encompassing improvisation.

2. Anything Goes

Use scales, intervals, arpeggios, and patterns from any key, or lack thereof, to improvise something new.

Both of the exercises explored in this chapter are very simple and can suit any level of player. However, it is easy to see how they could grow in complexity very quickly with slight adjustments. The metronome being set at a higher tempo can make

these exercises very difficult because musicians have less time to plan out their next move. To add to this, musicians can easily come up with complicated patterns to add to their improvisation and scale study repertoire. With exercises so simple and adjustable, the sky is the limit!

After exploring ways in which a musician can achieve improvisation in their individual practice, it is important to point out that these examples could easily be used within the context of a lesson, or assigned as individual practice. To familiarize ourselves with the use of improvisation within the context of a lesson, the next chapter will explore extemporization exercises for more than one musician at a time.

CHAPTER SIX

USING IMPROVISATION IN LESSONS

As mentioned in Chapter Five, all individual extemporization exercises can be used within the context of a lesson. This is especially true when the teacher has a clear understanding of the use of the exercises, and the student is at a level at which he/she is comfortable playing alone. This, however, is not always the case. Within many lessons, it is important that the teacher demonstrate or play with the student to help develop his/her ear for proper tone production, articulation, vibrato, expression, etc. The exercises put forth in this chapter are particularly useful in the context of a younger student, or in the case of group lessons of more than one student.

First, Exercise 1 in Chapter Five can be easily adapted for two or more people. The rules for the exercise would stay the same, but now both teacher and student play in dialogue. Jeffrey Agrell in another of his books, *Improv Duets for Classical Musicians: A Concise Collection of Musical Games for Two Players*, gives simple suggestions to make this exercise productive and fun for two players:

Players may choose different ways to respond to the other in various ways:

1. Imitate or echo the choices of the other player, e.g., key, length of notes, articulations.
2. Contrast with the other player in register, dynamics, key, etc.
3. Adjust note choice to achieve either a consonant or more dissonant sound relationship.
4. Play independently of the other voice; not adjust note choice.⁴³

⁴³ Jeffrey Agrell, *Improv Duets for Classical Musicians: A Concise Collection of Musical Games for Two Players* (Chicago: GIA Publications, Inc., 2013), 1.

Using this exercise is not only an easy way to warm-up at the beginning of a lesson, but a fantastic opportunity for a teacher to demonstrate good tone production, expressive techniques, and to give the student security in embarking on the unknown territory of improvisation. This is also an opportunity for the teacher to open a discussion about soundscapes and intervallic relationships, as well as conversation about the aforementioned tone production and expressive devices. Another warm-up I frequently use with my students not only gives an opportunity for the teacher to demonstrate tone production and articulation, but is a memory game, improvisation, and fun at the same time.

Exercise 3 **Memory Game**

Instructing the student(s) not to look at fingers, and only to use their ears, one person plays a note. Moving in a clockwise fashion, the next person plays that note (with same articulation and length) and adds another note. Subsequently, the next person in the group will play those two notes and add a third note. This continues until someone in the group cannot remember the order of notes after three attempts.

Suggestions for Performance

1. First play the game using the same articulation and rhythm, and using one octave of a key signature.
2. Once students improve, let everyone use different articulations which now also must be remembered along with the correct notes.

3. To increase difficulty, allow different rhythmic values to be placed on notes.
4. Further, gradually open up the range to more than an octave.
5. Lastly, use extended scales (pentatonic, blues, whole-tone, octatonic, chromatic, etc.).

The use of this memory game can aid in the development of some very specific skills in a student. In playing, each student is developing the use of their short-term memory. This is an essential skill in learning to improvise. All of the exercises thus far require some degree of working memory in order to succeed in their completion. This is a wonderful opportunity to single out that skill for further development. The memory game is also a prime exercise in developing tone production. When listening to the other people in the group play, and attempting by ear to determine what note is being played, students are not only listening to the pitch, but are examining the tone quality. Every individual instrument has its own tendencies in tone and timbre when it comes to certain ranges, or even certain notes, on the instrument. Some notes may be stuffy, like the throat tones on a clarinet; others might be very open and hard to control, like some of the half-hole notes on the bassoon. It is only in hearing these qualities and being able to identify them when they occur, on the student's own instrument as well as others, that the student can begin to make adjustments in evening out his/her tone.

Moving past the warm-ups and technical exercises that have been discussed so far, there are many options for teachers to work on improvisation in lessons. The next two exercises are still firmly rooted in exposing classical musicians to improvisation, but have

a much more compositional structure and set of guidelines.

Exercise 4 Chamber Music

Together, musicians play chorale-style melodies consisting mainly of quarter notes, plus some passing eighths, to create a contrapuntal texture. Experiment using a pre-set major or minor key and then no pre-set key.⁴⁴

Suggestions for Performance

1. For first attempts, assign different registers of the instrument for each player to use; this can later be abandoned.
2. When using a pre-set key, come up with cues to signal the arrival of cadence points.
3. Add more cadence points; maybe cadences on a different chord than the tonic chord.
4. Try coordinating transitions between different scales/keys.

⁴⁴ Jeffrey Agrell, *Improvisation Games for Classical Musicians: 500+ Non-jazz Games for Performers, Educators, and Everyone Else* (Chicago: GIA Publications, Inc., 2008), 61.

Figure 7
Example of Exercise 4
Chorale Improvisation Using G Major Scale



This exercise, though it can be used in very simple way, not only provides the group with the chance to experiment with improvising in a group context, but provides the opportunity to discuss a myriad of subjects. Everything from a historical discussion on the origins and use of chorales, a theoretical discussion on texture and proper voice leading in chorales, to a discussion about performance practices. All of the subjects not only tie together these subjects in a more useful and meaningful way, but assist in performing a chorale, whether it be improvised or not.

The last exercise I will mention brings the exercises discussed thus far closer together with the composition, the performance, and the construction of music. It can be used, very successfully, as a teaching tool on a variety of subjects, genres, and techniques, but could also serve as a solid foundation for students/performers to begin improvising in public.

Exercise 5

Duet

Two players decide on a key center or scale to utilize during the duet. One musician plays melodic material using the scale or key center, and the second plays accompanying material based on the implied chords or tertians structures related to the scale or key center.

Suggestions for Performance

1. Once fluency is developed in major and minor keys, use different scales (pentatonic, blues, whole-tone, octatonic, chromatic, etc.)
2. Utilize differing timbres, rhythms, tempos, dynamics, articulations, and styles to make the music more fun and/or challenging to play.
3. Experiment with each musician playing in different scales or key centers.
4. Come up with different key centers or scales to switch to every four measures.
5. Try switching to different scales and keys every two measures...Every measure!
6. While playing, make sure to communicate about style changes, rhythms, timbres, etc.

Figure 8
Example of Exercise 5
Duet Improvisation Using Bb Major Scale

The musical notation is presented in two staves, both in bass clef and 4/4 time. The key signature is Bb major (two flats).
Staff 1 (Melody):
- Measure 1: Quarter rest, followed by eighth notes Bb, C, D, E, F, G, A, Bb.
- Measure 2: Quarter rest, eighth notes Bb, C, D, E, F, G, A, Bb.
- Measure 3: Quarter rest, eighth notes Bb, C, D, E, F, G, A, Bb.
- Measure 4: Quarter rest, eighth notes Bb, C, D, E, F, G, A, Bb.
Staff 2 (Accompaniment):
- Measure 1: Quarter notes Bb, C, D, E, F, G, A, Bb.
- Measure 2: Quarter notes Bb, C, D, E, F, G, A, Bb.
- Measure 3: Quarter notes Bb, C, D, E, F, G, A, Bb.
- Measure 4: Quarter notes Bb, C, D, E, F, G, A, Bb.

This exercise in particular can take on a variety of forms and prove to be enlightening to a young musician interested in the compositional process. In implementing changing scales, key centers, styles, rhythms, and ranges, the musicians are not only composing before they play, but while they play, and are learning to become effective and flexible performers. This exercise also gives musicians the tools and skills they need to emulate different styles of music. Lets say, after the performers practice improvising over all of the major and minor keys in this manner, they want to play in the style of Mozart. It would not be too much of a stretch to take chord progressions from their favorite works of Mozart and plug them into this exercise. After practicing patterns that Mozart commonly used in the context of Exercise 2, they could develop many of the tools they needed to improvise in the style of Mozart.

From warm-ups to practical applications, there is an unending number of ways to practice improvisation. Mastering and expanding upon the exercises I've expounded on in this paper could easily be used throughout a musicians entire career. Not only is improvisation an unending source of material for individual technique building and compositional purposes, but its breadth of uses in the classroom is unmatched by any single source. It is a wonder that improvisation was abandoned by Western Art Culture in the first place.

CHAPTER SEVEN

CONCLUSION

With the overwhelming amount of literature and evidence in support of improvisation as a pedagogical tool, it is clear that extemporization is not only treasured by many, but is extremely useful. If not for the compounding weight of cultural importance or the significant historical value represented within the ever widening scope of improvisation, then simply for the physical, mental, and pedagogical benefits presented in this paper. From the quantifiable effects of improvisation on the functionality of our brains, to the inherent qualities of extemporization that may help free us from the confining nature of our current “standard model” of education, the scientific arguments for the pedagogical use of improvisation alone suggests that improvisation merits a place in our music schools.

This paper, like others before it, is one part of a quickly growing movement of musicians and educators alike trying to reinstate a lost tradition and educational tool within the culture of Western Art Music. I have addressed new developments in technology and the learning sciences that shed light on *why* we should extemporize. In looking to the future, this question of “why should we extemporize?” only opens doors to many more challenging questions. Why is improvisation being overlooked in our educational models? How do we fix this flaw? It is only in answering these questions, and others that arise, that we can start focusing on the real question at hand: Where will we take music next?

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