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Applying an Effective Practice Framework to Create a Lesson Syllabus for Undergraduate Jazz Trombone Students

William Wulfeck

University of Miami, will.wulfeck@gmail.com

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UNIVERSITY OF MIAMI

APPLYING AN EFFECTIVE PRACTICE FRAMEWORK
TO CREATE A LESSON SYLLABUS FOR
UNDERGRADUATE JAZZ TROMBONE STUDENTS

By

William Wulfeck

A DOCTORAL ESSAY

Submitted to the Faculty
of the University of Miami
in partial fulfillment of the requirements for
the degree of Doctor of Musical Arts

Coral Gables, Florida

May 2018

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William Wulfeck

Approved:

John Daversa, D.M.A.
Associate Professor of Music, Chair
Department of Studio Music and Jazz

Timothy Conner, B.M.
Associate Professor of Practice,
Instrumental Performance,
Trombone

Dante Luciani, M.M.
Lecturer, Jazz Trombone

Guillermo Prado, Ph.D.
Dean of the Graduate School

Brian Lynch, M.M.
Professor,
Jazz Trumpet

WULFECK, WILLIAM

(D.M.A., Jazz Performance)
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Applying an Effective Practice Framework to Create a Lesson Syllabus for Undergraduate Jazz Trombone Students

Abstract of a doctoral essay at the University of Miami.

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This essay provides a review of concepts and findings from recent research in the psychology of expertise that are relevant to the unique difficulties of jazz trombone practice. An adapted framework is developed based on deliberate practice and motivation psychology concepts to help jazz trombonists and teachers design an effective, organized, and personalized system for skill development. This framework is applied in the creation of a syllabus for an undergraduate jazz trombone studio.

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CHAPTER ONE

INTRODUCTION

“Some people get twenty years of experience, while others get one year of experience... twenty times in a row.”¹

To explain the mechanisms of learning, psychologists study the development of expert performance across a variety of subjects. Researchers examine “how experts may differ from non-experts in terms of their development, training, reasoning, knowledge, social support, and innate talent.”² They explore perception, memory, problem solving, decision making, creativity, and other related aspects of performance. This has developed into a distinct field referred to as the “psychology of expertise”, which by the early 2000’s warranted its own extensive published handbook of research.

This body of research is relevant to jazz trombonists, particularly those that are pursuing advanced studies to gain the distinction of jazz trombone “expert.” Psychological research can offer trombonists insights into their own skill development to help them make informed decisions both in and out of the practice room about how to most effectively achieve a high level of expert performance.

One of the greatest challenges for psychologists studying expertise is untangling the roles of innate talent and experience in skill development. This subject has long been of interest as scholars have attempted to understand the nature of “genius.”³ On the side favoring the influence of experience over that of innate talent lies the work of psychologist K. Anders Ericsson. Ericsson’s position is that with enough of the right kind

¹ Angela Duckworth, *Grit: The Power of Passion and Perseverance* (New York: Scribner, 2016), 117.

² K. Anders Ericsson et al., ed., preface to *The Cambridge Handbook of Expertise and Expert Performance* (New York: Cambridge University Press, 2006).

³ Francis Galton, *Hereditary Genius* (London: Julian Friedmann Publishers, 1978).

of practice, individual differences in innate talent are of less consequence. He explains that even people like Mozart, who showed great musical ability at a young age, were primarily products of their experiences.⁴

While there is ample evidence of genetic and physiological predispositions and aptitudes, this essay focuses on the concepts that will benefit jazz trombonists regardless of natural musical ability. Belief in one's own capacity to overcome challenges will push people to achieve more than a belief in predetermined natural abilities.

After a study of the practice habits of classical violinists,⁵ Ericsson and colleagues proposed a framework for skill development called deliberate practice. Ericsson refers to this as the “gold standard,”⁶ and it is a framework for effective use of individual practice time. In Ericsson's 2016 book, he summarizes the framework in seven bullet points.⁷ I have further condensed each point into a short phrase.

- Utilize established techniques proven to be effective by experts in your field.
- Practice just outside of your “comfort zone.”
- Set “well-defined, specific goals.”
- Practice with your “full attention and conscious actions.”
- Develop a system for receiving immediate feedback, and adjust performance based on that feedback.
- Create detailed mental representations.

⁴ K. Anders Ericsson and Robert Poole, *Peak: Secrets from the New Science of Expertise* (New York: Houghton Mifflin Harcourt, 2016), 211.

⁵ K. Anders Ericsson et al., “The Role of Deliberate Practice in the Acquisition of Expert Performance,” *Psychological Review* 100, no. 3 (July 1993): 363-406, PsycArticles, EBSCOhost.

⁶ Ericsson and Poole, *Peak*, 84.

⁷ Ericsson and Poole, 99.

- Build upon “previously acquired skills by focusing on specific aspects of those skills.”

These principles of deliberate practice are the starting point for my examination of how recent research in the psychology of expertise can help overcome the unique challenges of jazz trombone practice. The challenges involve how the physical limitations of the instrument influence the development of improvisational fluency in the jazz idiom.

I enrich the deliberate practice concepts with consideration of the ways in which motivation interacts with practice. Ericsson’s framework states that deliberate practice is difficult and not inherently enjoyable. This has been criticized by others in the field who contend that practice can in fact be pleasurable. This enjoyment debate lies at the intersection of practice techniques and motivation and is incorporated into the adapted framework of effective jazz trombone practice. Highly relevant to this section are the concepts of “flow”, as proposed by Mihaly Csikszentmihalyi, and “grit”, as proposed by Angela Duckworth. The terms connote seemingly opposing conceptions of the development of the professional. Is skill development effortless or effortful? Can an individual frame the uncomfortable experience of facing challenge as something pleasurable?

A central theme of both deliberate practice and motivation psychology is the setting of goals. Goals provide a sense of purpose inside and out of the practice room and connect everyday experience to a structure greater than the self. Therefore, they play a key role in the study at hand.

In this essay, I advocate for the creation of undergraduate college curriculum that incorporates these concepts into jazz trombonists’ practice at the inception of their

professional music careers. The study of music at the undergraduate level is typically one of the first steps taken as an adult towards a professional career as a jazz trombonist. Enrollment in a college jazz program reflects the desire to reach an advanced level of expertise. These early adult years are also a transition towards independence of action and thought. In this transition, it is essential that students learn to take charge and become self-sufficient learners and critical thinkers. The habits developed at this critical stage can set up students for a life-time of focused learning and growth.

In the conclusion of the essay, expertise psychology concepts are applied in a proposed sample syllabus for an undergraduate jazz trombone studio. This syllabus may be beneficial in its emphasis not on practice content, but on the process of practice itself. The syllabus includes the following:

- A system for defining goals directed toward achieving visions of personal artistry and community.
- Principles for effective practice.
- Ideas for creating a daily trombone practice routine.

Need for Study

Insights from the psychology of expertise are of great utility to aspiring professionals in any subject. Familiarization with the most up-to-date research into the workings of the mind and the mechanisms of learning can help the aspiring professional reach his/her optimal level of performance through development of more sophisticated training techniques.

The field of jazz trombone performance would benefit from more specialized literature linking psychological concepts to practice. The unique challenge of

coordinating the slide, tongue, and breath to create in-the-moment improvisations deserves special attention. While current literature from trombone pedagogues strikes upon many proven effective concepts and techniques, few sources offer a descriptive framework for development grounded in contemporary research. Many trombone methods are bound in tradition, propagating exercises from classic sources with little explanation as to why those exercises are effective. This leads to countless trombone students faithfully repeating prescribed exercises without understanding how the exercises help them reach their performance goals.

With the guidance of a knowledgeable teacher, these exercise prescriptions can prove effective for the beginning trombone student. However, when an intermediate student begins to commit a large amount of time to serious jazz trombone study with the hopes of becoming a professional, the student must begin to develop an understanding of the mechanisms of his/her own learning. Advanced music study becomes as much about gaining familiarity with the workings of one's own mind as it is about learning the instrument. Josh Waitzkin, world-class champion in both chess and tai chi, refers to this as the "art of learning."⁸

With some exceptions, written jazz methods and technical trombone methods are typically treated in isolation, each drawing from a separate practice tradition. Therefore, it falls to the jazz trombonist to integrate both into practice. The lack of effectively integrated jazz trombone methods attests to the fact that such a system of practice is difficult to create. It requires a high level of organization and sophistication. Concepts

⁸ Josh Waitzkin, *The Art of Learning: An Inner Journey to Optimal Performance* (New York: Free Press, 2007).

from psychology can support the development of such an integrated plan of practice for jazz trombonists.

While this study does not carry out quantitative research into the effectiveness of specific jazz trombone practice techniques, its goal is to provide a bridge for jazz trombonists to delve into insights from the psychology of expertise and motivation. The essay and syllabus will hopefully generate ideas for further psychological research into jazz trombone expert performance and facilitate artistic and technical trombone innovations formerly thought impossible.

Purpose of the Study

The purpose of this essay is to apply concepts and findings from recent research in the psychology of expertise to the unique difficulties of jazz trombone practice. While many of the concepts may prove useful to musicians practicing other styles and instruments, they will be approached from the perspective of the jazz trombonist with a focus on the applications for developing trombone expertise in that style. An adapted framework for practice is developed based on deliberate practice and motivation psychology concepts to help jazz trombonists and teachers design an effective, organized, and personalized system for skill development. This framework is applied in the creation of a syllabus for an undergraduate jazz trombone studio.

Summary

This study first explores the challenges faced by jazz trombonists, particularly challenges unique to the field. Next, it reviews concepts from the psychology of expertise and motivation that are relevant to those challenges. The final objective for this study is to present a framework for effective jazz trombone practice and apply it in a syllabus for an undergraduate jazz trombone studio.

CHAPTER TWO

LITERATURE REVIEW

The Origins of Deliberate Practice

Chess in Psychology of Expertise Experiments

Many of the influential early experiments in the psychology of expertise study the abilities of chess players. Chess has proven valuable to experimental research because player ability is measured using the Elo rating system, an objective measure based on a mathematical model that considers the outcome of each game as well as the skill level of the opponent.⁹ Using this measure, Chess players can be easily ranked and grouped into classes. Chess experts can be clearly defined for quantitative studies of expertise.

Perception and Memory

Psychologist George A. Miller published an interesting article in 1956 about the limits of memory and attention entitled, “The Magical Number Seven, Plus or Minus Two.”¹⁰ It reports that seven plus or minus two is the number of items that can be held in both short-term memory and attention. This theory proved to be foundational for research in perception and memory.

Adriaan De Groot’s 1965 book entitled *Thought and Choice in Chess* explores the interconnected relationship between perception, memory, and decision-making in chess.¹¹ De Groot tested the ability of chess players of different classes to recall the positions of

⁹ Fernand Gobet, *Understanding Expertise: A Multidisciplinary Approach* (London: Palgrave, 2016), 4.

¹⁰George A. Miller, “The Magical Number Seven, Plus or Minus Two: Some Limits on Our Capacity for Processing Information,” *Psychological Review* 63, no. 2 (March 1956): 81-89. PsycARTICLES, EBSCOhost.

¹¹ de, Groot, Adriaan D.. *Thought and Choice in Chess* (Amsterdam: Amsterdam University Press, 2008), ProQuest Ebook Central.

chess pieces after seeing them for as little as five seconds. In some variations, the chess players thought aloud as they viewed the positions. This “revealed that, rather than seeing individual pieces, experts see large complexes of pieces” and the potential moves and threats implied.¹² Later studies of player eye movements by Reingold et. al. confirmed the research.¹³

Building on De Groot’s work, psychologists Bill Chase and Herbert Simon developed chunking theory in the 1970s to explain the interplay of perception and memory implied by de Groot’s findings. Psychologist Fernand Gobet summarizes chunking theory as follows: “a) chunks are a single storage unit of both meaning and perception and are retrievable from long-term memory in a single act of recognition. b) short-term memory is limited to about seven items c) players of all skill levels learn new information at a relatively slow rate.”¹⁴ This theory explains how people are able to learn and recall complex ideas and skills despite a short-term working memory limited to about seven items. Psychologists have since attempted to refine chunking theory, and some derivative theories, including template theory, have been tested using computer models.¹⁵ This is relevant to jazz trombone practice because it explains the cognitive processes at work when learning musical material and creating mental representations.

Deliberate Practice

Early evidence for what would become known as deliberate practice was found in the 1980 digit span memory experiment of K. Anders Ericsson, William Chase, and Steve

¹² Fernand Gobet, *Understanding Expertise*, 12.

¹³ Eyal M. Reingold, Neil Charness, Marc Pomplun, and Dave M. Stampe, "Visual Span in Expert Chess Players: Evidence From Eye Movements." *Psychological Science* 12, no. 1 (2001): 48-55, <https://doi.org/10.1111/1467-9280.00309>

¹⁴ Gobet, 31.

¹⁵ Gobet, 60.

Faloon.¹⁶ This experiment recorded the thought processes of college student subjects as they practiced memorizing strings of numbers. Based on chunking theory, Ericsson, Chase, and Faloon sought to observe the processes of encoding single numbers into chunks using retrieval structures to overcome the limitations of short-term memory. The two subjects were able to memorize 84 and 106 digits respectively after hearing the numbers dictated at a speed of one number per second.¹⁷ Through practice, the subjects' performance surpassed all expectations and shattered beliefs about the limitations of short-term memory.

In a 1993 study of classical violinists and pianists, Ericsson and colleagues introduced the term “deliberate practice” and formalized the framework. The first part of the study compared the practice habits of three groups of ten violin students at the Berlin University for the Arts. The groups were designated as music education students (secondary performers), better students, and best students as identified by the teachers. After analyzing practice diaries, clear patterns emerged delineating the practice habits of each group. The best players practiced far more. They concluded, “Many characteristics once believed to reflect innate talent are actually the result of intense practice extended for a minimum of ten years.”¹⁸ They introduced the name “deliberate practice” for this kind of activity.

¹⁶ Anders K. Ericsson, William G. Chase, and Steve Faloon, "Acquisition of a Memory Skill," *Science* 208, no. 4448 (June 1980): 1181-1182, <http://www.jstor.org/stable/1683736>.

¹⁷ Gobet, 41.

¹⁸ Ericsson et al., “The Role of Deliberate Practice,” 363.

The 10,000 Hour Rule

The 10,000-hour rule rose to prominence in the work of Chase and Simon. In their 1973 study of chess players, they estimated that a chess master will have spent 10,000-50,000 hours “staring at chess positions.”¹⁹

In 2008, Malcolm Gladwell’s book *Outliers* helped introduce the 10,000-hour rule into popular culture at large. The rule states that it takes approximately 10,000 hours to “achieve excellence at performing a complex task.”²⁰ Gladwell pulled this rule from the 1993 study by K. Anders Ericsson and colleagues. In addition to citing the Ericsson study, he presented informal case studies of Mozart, Bill Joy, The Beatles, and Bill Gates. Gladwell calculates that each of these figures dedicated an intensive period of their early lives to achieving the 10,000 hours required for excellence. However, Ericsson expressed criticism of Gladwell’s rule due to the misrepresentation of his conclusions. While Ericsson agrees that achieving mastery takes a large commitment of time, the 10,000 hour “rule” leaves out the critical consideration of practice quality. Not all practice falls into the category of “deliberate.” Sitting in a practice room for 10,000 hours will not automatically turn someone into a virtuoso.

Recent Evidence from Neuroscience

Neuroscientists have found significant evidence that the brain can change itself in the processes of learning or injury recovery. This phenomenon has been labeled “neuroplasticity.”²¹ This mechanism of change is summarized by the neuroscience axiom

¹⁹ H.A. Simon and W.G. Chase, “Skill in Chess”, *American Scientist* 61, no. 4 (July-August 1973), 402, <http://www.jstor.org/stable/27843878>.

²⁰ Malcolm Gladwell, *Outliers: The Story of Success* (New York: Back Bay Books, 2008), 39.

²¹ Norman Doidge, *The Brain that Changes Itself* (New York: Penguin Books, 2007).

“Neurons that fire together wire together.”²² Therefore, learning through music practice can lead to physiological changes in the wiring of the brain.

Daniel Coyle’s book, *The Talent Code*, reviews further breakthroughs from neuroscience in support of deliberate practice and the potential for skill development within all humans. Researchers have discovered the surprising role in brain plasticity of a substance called myelin. Coyle summarizes the myelin “revolution” like so:

- 1) Every human movement, thought, or feeling is a precisely timed electric signal traveling through a chain of neurons---a circuit of nerve fibers.
- 2) Myelin is the insulation that wraps these nerve fibers and increases signal strength, speed, and accuracy.
- 3) The more we fire a particular circuit, the more myelin optimizes that circuit, and the stronger, faster, and more fluent our movements and thoughts become.²³

These findings cast music practice in a new light. Learning tasks such as memorizing and developing psycho-motor control are revealed to be a cellular process of installing neuron insulation.

Talent

An influential paper by Michael Howe and colleagues concluded that research “suggests that differences in early experiences, preferences, opportunities, habits, training, and practice are the real determinants of excellence.”²⁴ However, various studies have found a moderate correlation between musical ability and intelligence, short-term memory, reading ability, and spatial ability.²⁵

²² Donald A. Hodges and David C. Sebald, *Music in the Human Experience*. (New York: Routledge, 2011.), 159.

²³ Daniel Coyle, *The Talent Code* (New York: Bantam Books, 2009), 32.

²⁴ Michael J.A. Howe, Jane W. Davidson, and John A. Slodoba, “Innate Talents: Reality or Myth?” *Behavioral and Brain Sciences* 21 (June 1998): 399-407, doi:10.1017/S0140525X9800123X

²⁵ Gobet, 123.

In a 2013 article, David Z. Hambrick and colleagues cast doubt on the primacy of deliberate practice in explanation of the development of experts.²⁶ Their analysis of survey studies in music found that only 30% of reliable variance in music performance could be accounted for by deliberate practice. They advocate for further exploration of other factors, such as starting age, genetics, and general intelligence.

While the influence of innate talent in musical skill cannot be discounted, this essay will focus on people's considerable ability to improve their skill through "grit" and time spent in effective practice. Belief in predetermined lack of musical talent may lead many to give up a life of musical enjoyment.

Ideas about Motivating Skill Development

Flow

Psychologist Mihaly Csikszentmihalyi presents a theory for optimal experience called flow. He characterizes flow as follows:

...a sense that one's skills are adequate to cope with the challenges at hand, in a goal-directed, rule-bound action system that provides clear clues as to how one is performing. Concentration is so intense that there is no attention left over to think about anything irrelevant, or to worry about problems. Self-consciousness disappears, and the sense of time becomes distorted. An activity that produces such experiences is so gratifying that people are willing to do it for its own sake, with little concern for what they will get out of it, even when it is difficult or dangerous.²⁷

This theory contradicts aspects of Ericsson's theory of deliberate practice. One of the goals of this essay is to incorporate both deliberate practice and flow theories into the

²⁶ David Z. Hambrick, et al., "Deliberate Practice: Is That All It Takes to Become an Expert?" *Intelligence* 45 (July-August 2014), 34-45. <https://doi.org/10.1016/j.intell.2013.04.001>.

²⁷ Mihaly Csikszentmihalyi, *Flow: The Psychology of Optimal Experience* (New York: Harper Collins, 1990), 71.

new framework for jazz trombone. Optimal success in the practice room comes not only from effective practice but also from a motivating enjoyment of the learning process itself.

Grit

Psychologist Angela Duckworth introduces the concept of grit as a factor in achievement. In her 2016 book, she suggests the following two equations.²⁸

1. Talent x Effort = Skill
2. Skill x Effort = Achievement

Duckworth is making the point that “effort factors into the calculations *twice*.” Effort is explained as the product of a person’s grit, summarized as “passion and perseverance for long-term goals.”²⁹ Interestingly, Duckworth makes the assertion that grit can be developed. Therefore, an aspiring professional can not only develop the necessary skills through effective practice, but also can develop passion and perseverance to support effective practice as a lifelong habit.

Growth Mindset Vs. Fixed Mindset

Psychologist Carol Dweck summarizes her research findings in the book *Mindset*. The main theory is that the view a person adopts of themselves affects the way they live their life.³⁰ Dweck distinguishes between a growth mindset and a fixed mindset. A person with a growth mindset believes in the possibility of personal development through experiences and training. On the other hand, people with a fixed mindset view their personality and aptitudes as more-or-less constant and unchangeable.

²⁸ Duckworth, *Grit*, 42.

²⁹ Duckworth, 269.

³⁰ Carol Dweck, *Mindset* (New York: Random House, 2006).

CHAPTER 3

METHODOLOGY

The purpose of this essay is to apply concepts and findings from recent research in the psychology of expertise to focus on the unique difficulties of jazz trombone practice. The theory of deliberate practice, as proposed by psychologist K. Anders Ericsson, is enriched by ideas from motivation psychology and adapted to help jazz trombonists and teachers design an effective, organized, and personalized system for skill development. An adapted framework is applied to create a syllabus for an undergraduate jazz trombone studio. Three questions that guided research for this essay are:

1. What unique challenges do jazz trombonists face in practice?
2. What concepts from psychology will help overcome those challenges?
3. How can the concepts be integrated into a syllabus for an undergraduate jazz trombone studio?

Challenges of Jazz Trombone Practice

In chapter four, I explore the specific technical challenges faced by jazz trombonists. Defining these challenges directs the search for relevant psychological concepts and informs the subject material emphasized in the syllabus. Though many challenges are shared across styles and instruments, the chapter attempts to narrow the challenges down to those unique to jazz trombone practice.

Proven Trombone Practice Techniques

Chapter five provides an overview of techniques proven to be effective by expert jazz trombonists. It is divided into two sections: one on methods of developing trombone technique and one on methods of developing perceptual abilities. The section on technique is a brief survey of common elements in a daily routine designed for trombone maintenance and development. The section on musical perception covers methods for developing the detailed mental representations necessary for improvisation, sight-reading, and other aspects of jazz performance.

The Importance of Goals for Sustained Motivation and Effective Practice

Chapter six delves into the role of goal setting in jazz trombone practice. Goals are fundamental to both the deliberate practice framework and theories of motivation. They are a unifying bridge between the two subjects and therefore are treated with prominence in the syllabus.

I cover the concepts of SMART goals and stretch goals. I also explain the “WOOP” system proposed by psychologist Gabriele Oettingen. Finally, I consider the identification of expert role models and the idea of using these role models to define values and goals.

The Process of Improvement: Step-By-Step Improvement Regulated by Feedback

Chapter seven explores the tenets of Ericsson’s deliberate practice framework involved in regulating the process of improvement. This process consists of taking small steps beyond the “comfort zone” toward clearly defined goals. This process is regulated by a feedback loop. Music that is too easy does not improve abilities. Music that is too difficult can be overwhelming and may even cause physical injury. Effective practice

relies on one's ability to use feedback to choose and adjust practice material to the appropriate level of challenge. The chapter provides specific examples for modifying practice materials to adjust difficulty.

Included in this chapter is an overview of the types of feedback involved in jazz trombone practice. This includes one's direct self-perception of performance and indirect perception through the reactions of others (teachers, peers, audiences, etc.). Also discussed are feedback-providing practice tools such as a mirror, metronome, and audio/video recording equipment.

The chapter concludes with a section on the role of mental representations in the process of improvement in jazz trombone performance. This includes consideration of the value of virtual practice.

Full Attention and Conscious Actions

Chapter eight addresses the deliberate practice principle of "full-attention and conscious actions." It incorporates the concepts of both mindfulness and Cal Newport's "deep work" to outline ways to avoid both external and internal distractions while practicing. The author examines the common activities engaged in while practicing such as watching television and smart phone use. Many brass players have advocated the use of television-watching to make mundane activities such as multiple tonguing or long tones more enjoyable. Is it worth the decrease in practice effectiveness?

Motivation

Chapter nine addresses the theories of motivation as related to jazz trombone practice. If aspects of deliberate practice are not enjoyable for their own sake, then sustaining motivation to commit thousands of hours to this type of practice becomes a

primary concern in achieving skill mastery. This chapter describes concepts for building and maintaining motivation. I once again emphasize the importance of goal-setting. Other key concepts for motivation to be incorporated are Mihali Csikszentmihalyi's theory of flow, Angela Duckworth's theory of grit, Carol Dweck's mindset theory, and principles of habit formation.

Putting it Together: Creating a Syllabus

In chapter ten, I propose an adapted framework for effective jazz trombone practice based on the research explored in previous sections. Then I reflect on the process of syllabus design based on the proposed framework. The sample syllabus for an undergraduate jazz trombone studio is presented in Appendix A.

Instead of specific exercises or routines, the syllabus emphasizes strategies for effective practice. The concept is for the syllabus to be a guide for students to constructively analyze their own level of performance, set goals, and then design an effective practice strategy to achieve those personal goals. Hopefully, the students will be encouraged to develop the critical thinking and problem-solving skills necessary to push through musical challenges throughout a lifetime of trombone practice. Ideally, the curriculum would allow the teacher to transition away from the role of setting performance goals for the student over the course of their studies. The teacher's role would be to provide feedback and encouragement as well as hold the student accountable for their own goals during the terms of study through the assigning of grades.

This syllabus may be beneficial in its emphasis not on practice content, but on the process of practice itself. It includes the following:

- A system for defining goals directed toward achieving visions of personal artistry and community.
- Principles for effective practice.
- Ideas for developing a daily trombone practice routine.

Goal-setting is given prominence in the beginning of the syllabus because of its pivotal role in both deliberate practice and motivation.

CHAPTER 4

IDENTIFYING THE CHALLENGES FACING JAZZ TROMBONISTS

Identifying the challenges facing a jazz trombonist requires clearly outlining performance goals. Each player will have unique musical challenges and values that determine those goals, but this section will address the challenges most commonly faced.

The approximated definition of the jazz trombonist will follow the general curricular standards that have emerged in college jazz programs. These standards reflect the trend in jazz performance toward increasing levels of instrumental virtuosity combined with improvisational fluency in the established jazz language. Recent technological developments and improved global access to information have raised the standards for virtuosity dramatically and enriched jazz with ideas from countless music cultures around the world. “Jazz” players are increasingly required to be fluent in time signatures, forms, tunings, timbres, and applied technologies unknown to jazz musicians of the mid-20th Century. This requires players to effectively prioritize performance goals.

The virtuosic values of jazz highlight what might be considered as “virtuosic” instruments, particularly saxophone and piano. The relative ease of jumping from extreme high and low ranges combined with the great capabilities for speed place these instruments at the technical limits of the jazz idiom. The perceived technical strengths and weaknesses of the trombone place its players at a disadvantage in a culture that highly values speed and consistency of sound across ranges. However, there are contemporary trombonists who have mastered techniques to play with the consistency and speed that is common on other instruments in contemporary jazz performance.

Mastering these techniques requires breaking out of the natural tendencies of the trombone through effective practice towards specific technical goals.

The following sections address the challenges unique to jazz trombonists. Though players of other instruments do practice these aspects of technique, they are unique challenges for trombonists because they are prerequisite to performance of much of the improvisational language of jazz.

Fast and Consistent Articulation

Brass and woodwind players utilize a fast tongue articulation technique called “double tonguing”. However, valve brass instruments and woodwinds can more easily execute fast passages consistently utilizing the natural articulations provided by the change of keys or valves. Because of the slide, trombonists must rely heavily on tonguing to achieve consistent articulation at fast tempos. Development of this skill is difficult because it is developed slowly over time through extended sessions of tedious, repetitive, and potentially physically tiring practice. This requires patience and perseverance. Pianists and guitarists also engage in articulation practice, but with less physical demands on the body. Therefore, physical endurance does not as easily interfere with guitar and piano articulation development.

Difficulties of Range

The natural range of the trombone also places jazz trombonists at a disadvantage. On trumpet or saxophone, a musician can more easily sustain a “melody” range centered about an octave above middle C that can cut through the common high volumes of jazz rhythm sections.

Contemporary jazz language emphasizes the use of extensions and upper structures. As jazz arranging norms show, these extensions are most favored when played above the root, fifth, third, and seventh of the harmonies. Therefore, to apply contemporary jazz language utilizing extensions on trombone in the same way as a saxophone or piano requires a level of comfort in the high register.

Trombonists can acoustically balance their improvisations by playing in the upper tenor range or playing at a maximum volume, but sustaining high and loud playing requires great skill and technical efficiency combined with physical endurance. When the techniques of fast articulation are added, the challenges are compounded.

Playing at a lower relaxed volume increases technical control, but the trombonist may be buried by the rhythm section. Some trombonists overcome these challenges through amplification. By playing into a microphone, a soft-playing trombonist can be heard at a balanced volume.

The “soft mic” approach may lose the robust character and strength of a trombone played at a full volume, but on the other hand, full volume playing may sacrifice finesse, facility, and control. I propose that the most successful players likely fall somewhere in between. J.J. Johnson has remained a favorite for trombonists perhaps because he defines a desirable middle-ground between full sound and control.

Summary

The challenges unique to jazz trombone involve mitigating the limitations posed by the trombone's slide and range. The advanced jazz trombone student can do so by emphasizing some or all of the following elements of technique in practice:

1. Upper register
2. Sustaining loud volumes
3. Single Tonguing
4. Multiple Tonguing (Double Tonguing/Doodle Tonguing)

These aspects of technique are not unique to trombone and are practiced in varying degrees by many other instruments. However, these aspects of technique target the specific weaknesses of the trombone in a jazz culture that values virtuosic speed and technical prowess. For effective use of practice time, jazz trombonists should focus extra energy on these four elements of technique.

Technique in the Service of Realizing an Artistic Vision

The above section begs the question: do jazz trombonists really need to play fast and high to make good music? Arguably, no. However, breaking down technical barriers allows for more freedom of self-expression.

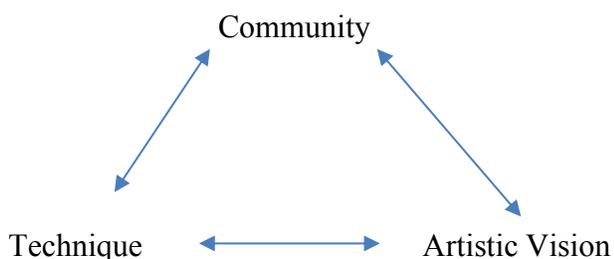
This section serves as a reminder that technique must remain in the service of self-expression. In some cases, an excessive preoccupation with technique may stifle the creative process. In his book, *Trumpet Technique*, Frank Campos describes this relationship between technique and artistic vision (message) with the concepts of the dilettante and the pedant. The dilettante has a message but no skill to articulate that

message. The pedant has an abundance of skill, but no message to convey. Campos places all musicians somewhere on a spectrum between the two extremes.³¹

Elements of a Professional Music Career

Perhaps the elements of professional music career development can be illustrated as in Figure 4.1.

Figure 4.1: Three Elements of a Professional Music Career



The three elements are interdependent. If any of the three elements are taken away, a music career is not viable. I include community because technical and artistic achievement are both subjective and defined by the environmental context of the musician. Commercial viability as a musician relies on conforming to technical standards and artistic values defined by the community.

This essay primarily addresses effective development of the technical element in the practice room. However, it is impossible to practice effectively and maintain motivation without reflecting on how the practice serves the music-making in the context of the community. Over-arching artistic and social goals should dictate the specific activities of every-day practice.

³¹ Frank Campos, *Trumpet Technique* (Oxford: Oxford University Press, 2005), 5.

We choose the communities we participate in based on our values and beliefs, but our values and beliefs are also shaped by our communities. The successful trombonist actively sets and achieves practice goals that align with the communities he/she would like to be a part of and then goes out and participates in those communities.

CHAPTER 5

PROVEN JAZZ TROMBONE PRACTICE TECHNIQUES

I have divided this overview of proven jazz trombone practice techniques into two sections. The first section considers common methods used for technical development on trombone. Technical development allows us to realize our musical ideas by refining our speed, timing, efficiency, strength, and endurance. The second section considers the common methods used in the development of perceptual skills. These skills help us to make sense of musical information when we hear it, to create mental representations of that information, and to formulate an appropriate musical response. Both aspects of musical ability are intertwined, as mental representations of our physical actions in performance become connected with mental representations of the music.

Technical Development

Trombone Practice Routines

A regular playing routine is beneficial for developing consistency on brass instruments. The routine is usually conceived of as a sequence of exercises isolating elements of trombone technique. It can be considered a way of easing into the day's more demanding performance activities and/or as a way of maintaining and developing fundamental technical control of the instrument. This is often referred to as the "warmup."

Players in fact require little "warmup" time to reach a day's optimal performance condition. Many published routines are greater than twenty minutes in length and challenge players' technical abilities by expanding range and pushing tempos. Beginning and intermediate students might be in danger of tiring out from exercises before they

even get to the musical repertoire. It may be more beneficial to conceive of this type of practice as maintenance rather than as a “warmup”. Players should be conscious of this distinction between warmup and maintenance and consider the goals of a routine. Is the routine serving to warm up to optimal performance condition, to maintain existing technical abilities, or to expand current capabilities?

From my own experience, I have conceived of a distinct procedure for the warmup (as opposed to the maintenance routine). The warmup has the goal of optimizing technical fluidity in a given performance. To do so requires easing into the demands of the performance while sacrificing as little endurance as possible. Here are some proposed rules for a warmup:

1. Progress from easy to difficult: slow to fast, middle register to high/low, etc.
2. Do not push the technical mechanisms far beyond the requirements of the performance.
3. Play each component of the warmup only to the point of fluency and then stop.

Routines help avoid injury and detrimental playing behaviors by providing time to consciously reinforce good performance habits. This is a time to focus on fundamentals including sound, posture, slide control, melodic intonation, timing of partial changes (lip slurs/flexibility), and timing of articulations. As memory research has shown, the brain has a short-term memory capacity limited to about seven items of information. This severely limits a person’s ability to split attention between stimuli. When performing music, a trombonist’s attention should primarily be on the musical material and will be unable to devote full attention to maintaining correct behaviors. Therefore, these correct behaviors need to be reinforced and automatized into unconscious performance by

spending some practice time devoted to these aspects. A maintenance routine serves this purpose. Classic examples of routines include those developed by Emory Remington and James Stamp. Contemporary examples of practice routines can be found in the books by trombonists David Vining³² and Michael Davis³³. Below are common components of a daily trombone routine.

Buzzing

Playing on the mouthpiece is referred to as buzzing. Although not universally embraced by all players, buzzing is a common feature of trombone routines. Critics state that buzzing creates bad habits because the lip vibration for a given note on the mouthpiece differs from lip vibration on the complete trombone. However, buzzing offers clear feedback on the clarity and focus of a player's airstream as it crosses the embouchure, and I have experienced no discernable negative impact. In fact, I have often observed an immediate increase in players' sound clarity following buzzing.

Long Tones

Long tones can be used to develop sound, air control, dynamic control, range, and/or endurance based on the variables of the exercise. Most traditional long-tone exercises begin with long notes in a middle register and extend out into higher and lower ranges.

³² David Vining, *Daily Routines for Tenor Trombone*, 3rd ed. (Flagstaff, AZ: Mountain Peak Music, 2010).

³³ Michael Davis, *20 Minute Warm-Up Routine* (New York: Hip Bone Music, 2006).

Lip Slurs

Lip slurs develop the timing and speed of note changes across partials. This skill is often referred to as flexibility. They are commonly practiced with no tonguing which allows the player to achieve a well-timed change with air and embouchure alone.

Single Tonguing

Single tonguing is the use of the tongue to articulate the beginnings of notes. The tongue flicks forward to the upper palette of the mouth behind the teeth, briefly interrupting the stream of exhaled air. Single tonguing exercises work the speed, timing, and consistency of the articulations. This motion is conceptualized by saying tah, tuh, ti (hard articulation), or dah, duh, di (soft articulation). Exercises often either isolate the skill by repeating a single pitch or incorporate scalar patterns that move melodically into different ranges. Tonguing speed is developed by gradually increasing exercise tempos over periods of daily practice.

Multiple Tonguing

Multiple tonguing allows for increased articulation speeds by utilizing the tongue's rebound motion to articulate consecutive notes. For traditional multiple tonguing, try saying tuh-kuh (hard) or duh-guh (soft) to get a feeling for the physical motion. A variation of multiple tonguing referred to as "doodle" tonguing uses the tongue motion of "duh-duhl" to create a more legato effect. Like single tonguing, multiple tonguing techniques are developed by gradually increasing exercise tempos over time.

Dynamic Control

Variations of long tones and lip slurs can focus on controlling the volume of notes. Some exercises require maintaining control at extreme loud or soft volumes. Other exercises call for dynamic control of crescendos and diminuendos.

Range

Exercises to develop high and low registers commonly utilize long tone or lip slur patterns progressively transposed chromatically into high or low range extremes.

Warming down

Many trombonists advocate the use of a warm-down routine after periods of strenuous playing. These routines are often short and feature low notes to relax the muscles of the embouchure to aid in recovery.

Perceptual Skill Development

Developing perceptual skill is essential for all musicians. This section will examine the proven techniques relevant to jazz trombonists.

Perceptual skill development in jazz can be divided into two main components: perceiving the organization of pitches and perceiving the organization of time. This section describes the proven techniques used to develop these perceptual skills in jazz performance. I refer to the process of internalization. I conceive of internalization as the process of building clear mental representations of the musical material. Mental representations will be discussed in detail in chapter seven.

Listening

Learning jazz is often compared to learning to speak a language. Just like a toddler learning to speak from listening to parents, a music student learns much from

listening to the performance of jazz masters. Through listening, a player begins to unconsciously internalize the rhythmic, melodic/harmonic, and timbral conventions of jazz performance. A student of jazz trombone must listen to the performance of more advanced jazz trombonists to build a representation of what jazz trombone sounds like.

Learning Music Theory and Notation

All humans unconsciously learn basic conventions of their culture's music from listening, but musicians must consciously develop the ability to perceive music in finer detail. They must formally study the theoretical rules governing the music and learn the naming and notation conventions used to describe sounds.

Two primary musical elements of theory are the organization of pitches and the organization of time. In the study of pitch relationships, students begin musical studies by learning the note names and the intervallic relationships between notes. Then, they learn ways to organize those notes into scales and chords. In the study of temporal relationships, students learn relative durations of sounds and silence in relation to a regular pulse. In music, these rhythmic and pitch elements are combined to create coherent phrases and ideas. The goal of theory study is to provide the descriptive tools to perceive the organization of musical ideas and create mental representations in as much detail as possible.

Transcription

One common way that people learn jazz is through the practice of transcription. In jazz, transcription refers to the process of writing down, playing, and memorizing recorded jazz solos by master musicians. A step beyond listening, the transcription

process allows musicians to analyze and internalize in detail the musical ideas of the masters.

Many musicians skip the notation step because they do not find it necessary for internalization. Arguably, memorizing the solos is indeed the key part of the process for internalizing the material. However, I advocate for a complete process that includes both writing down and memorization. Many players shy away from the part of the process that is most difficult for them. Players with good aural abilities might easily match performances by ear but be unable to accurately notate and analyze the sounds and rhythms. Players with strong theoretical knowledge might be uncomfortable with the methods of memorizing music. Both parts of the process are recommended for getting the most benefit out of the transcription process and becoming a well-rounded jazz musician.

Chord and Scale Exercises, Patterns

Chords and scales are building blocks of the pitched aspect of improvised jazz language. Therefore, fluency in chords and scales is essential for jazz improvisation. Jazz musicians commonly utilize the modes of the major, melodic minor, harmonic minor, and harmonic major scales as well as the diminished, whole tone, and augmented scales. Jazz students benefit from learning all of these scales and as many permutations of these scales as possible.

Chord/scale theory assigns scales to chord qualities. A useful overview of this theory is provided in saxophonist Gary Keller's book, *The Jazz Chord Scale Handbook*.³⁴ Students can learn the scales and apply them to the appropriate chord in their improvisations. This has proven to be an effective method to get jazz students to play

³⁴Gary Keller, *The Jazz Chord Scale Handbook* (Mainz: Advance Music, 2002).

melodies that fit the harmonies, but it only gets students part of the way to improvisation in the jazz language. Jazz masters do not just play scales. The real art of jazz improvisation comes from the endless possible ways the lines can travel *across* the chords *in time* to build tension and resolution. Transcription aids in the appropriate *musical* application of chords and scales by helping jazz students to internalize the rhythmic placement and resolution of melodies built from the scales. Reciprocally, knowledge of chords and scales improves perception in the transcription process.

Rhythm and meter

Rhythm involves the position of sounds in time relative to other sounds. In most styles of jazz, the rhythms are organized and measured by imposing a regular metric system based on a pulse. A pulse is something embodied within all humans. It is felt in our heart beat, and used to regulate our legs when walking.

Internalizing rhythms and meters requires familiarizing oneself with every possible subdivision placement of notes within a measure. Jazz musicians in the 21st Century are guaranteed to encounter not only the traditional 4/4 and 3/4 meters, but also odd meters such as 5/4 and 7/4.

Internal Clock and Tempo

Most jazz is performed with a steady pulse (tempo). Perhaps underemphasized in trombone pedagogy, the ability to maintain a steady tempo can be strengthened through creative practice with a metronome. With the increasingly powerful metronome functions available on smart phone apps, players can program metronomes to provide feedback on their internal clock without explicitly giving the beat to them. Feedback will be discussed in more detail in chapter seven.

Swing and other Time Feels

Time feel might be considered the naturalization or “humanization” of metronomic pulse subdivisions. Essential to jazz practice is the subtle concept of the swing time feel. Many introductions to jazz performance explain the swing feel as playing the second written eighth note of a duplet as though it were a quarter note triplet followed by an eighth triplet. This is an approximation of a subtle rhythmic concept, but it can get beginning students swinging. Swing feel can be better perceived as a spectrum of beat subdivisions falling somewhere between a rhythm of two straight eighth notes (dividing the beat in half) and a rhythm of a dotted quarter note followed by a sixteenth note (dividing the beat an entire eighth note later). Time feel is (hopefully) synchronized when musicians play together. The feel is affected by the jazz style and tempo of performance.

Time feel is sometimes under-developed in trombone practice. Players can increase awareness by creating exercises that consciously manipulate the beat subdivisions and by listening to and transcribing jazz performances with this concept in mind.

Playing Other Instruments

Musicians develop representations of pitch and rhythmic structures that are outside of their instrumental capabilities slowly. Trombone is limited to playing one note at a time centered in the tenor range. Therefore, representations of notes in extreme ranges, harmonic structures, and rhythmic relationships are often underdeveloped in trombonists. This can be corrected by learning other instruments. For example, learning bass clarifies low-note perception, learning trumpet clarifies high-note perception,

learning piano voicings clarifies vertical harmonic structures, and learning drum-set clarifies rhythmic relationships. This aids in the holistic perception of music in performance.

Sight-Reading

The ability to read and perform written music on sight is an essential skill for professional trombonists of all styles. In the professional life of many jazz trombonists, sight-reading abilities are put to use even more frequently than improvisational abilities. Players develop this skill by reading music at an appropriately challenging difficulty levels and in a variety of musical settings. Musicians often organize “reading” big bands that offer an opportunity for such practice to jazz trombonists.

Ideas for Integrating Jazz Language into a Daily Trombone Practice Routine

The proven concept that I find most valuable from classic brass technical approaches is the concept of the daily routine that includes exercises to isolate and maintain the various technical components of performance. However, the published sources have severe limitations. Classic published brass pedagogy exercises tend to utilize basic scale patterns and rhythms. While major and minor scales are essential building blocks of the jazz language, once the basic patterns are mastered, practice time is better spent on something else. Players should not fall into “comfort zone” of a repetitive major scale routine. I recommend that jazz trombonists retain the structure of the classic brass maintenance routines but come up with their own personalized variations of the exercises by incorporating increasingly advanced harmonic and rhythmic concepts.

CHAPTER 6

SETTING GOALS

“Deliberate practice involves well-defined, specific goals and often involves improving some aspect of the target performance; it is not aimed at some vague overall improvement. Once an overall goal has been set, a teacher or coach will develop a plan for making a series of small changes that will add up to the desired larger change. Improving some aspect of the target performance allows a performer to see that his or her performances have been improved by the training.”³⁵

Goals play an essential role in both deliberate practice and motivation. Setting goals represents an important initial step in development of jazz trombone expertise. They are chosen based on their perceived “desirability” and “feasibility.”³⁶ That is, they are chosen based on how much a person wants to achieve the goal and how capable that person believes they are of doing so.

SMART Goals and Stretch Goals

Journalist Charles Duhigg outlines the practical applications of this research in his book *Smarter Faster Better*.³⁷ He tells the story of SMART goals in the offices of General Electric (GE).³⁸ GE developed a system of goal-setting for its employees called the SMART goal system. The SMART criteria are specific, measurable, achievable, realistic, and time-based.³⁹ Duhigg writes, “goal-setting processes like the SMART system force people to transfer vague aspirations into concrete plans. The process of making a goal specific and proving it is achievable involves figuring out the steps it

³⁵ Ericsson and Poole, 99.

³⁶ Peter M. Gollwitzer and Gabriele Oettingen, “Goal Pursuit,” in *The Oxford Handbook of Human Motivation*, ed. Richard M. Ryan (Oxford: Oxford University Press, 2012), 210.

³⁷ Charles Duhigg, *Smarter, Faster, Better: The Secrets of Being Productive in Life and Business* (New York: Random House, 2016). 115-131.

³⁸ Duhigg, *Smarter, Faster, Better*.

³⁹ Duhigg, 116.

requires...Coming up with a timeline and a way to measure success forces a discipline onto the process that good intentions can't match."⁴⁰

Duhigg next explains the shortcomings of the SMART goal system. Employees at GE were even found to be taking time filling out SMART goal memos *after* they had completed the goals because it gave them a sense of accomplishment. This highlights an important consideration when thinking about goals. Goal-setting is a tool for accomplishment, but there is a danger of spending all of one's time and energy on goal-planning without actually getting any real work done. Duhigg writes, "Experiments have shown that people with SMART goals are more likely to seize on the easiest tasks, to become obsessed with finishing projects, and to freeze on priorities once a goal has been set."⁴¹

The short-comings of the SMART goal system are balanced by the introduction of a "stretch goal." A stretch goal is a goal that is so ambitious that a person may not initially have an idea of how reach it.⁴² This encourages creativity and innovation to reach things not previously thought to be possible. By breaking down audacious stretch goals into smaller and more manageable SMART goals, the impossible can be within reach.⁴³ The process, then, is to start with a stretch goal. Then break it down into more manageable sub-goals using the SMART goal concept.

For a jazz trombonist, an example of a stretch goal could be something like win a Grammy award, win an audition to join an elite jazz group, successfully apply for a grant, or release an album on a well-known jazz label. The value of the stretch goal is its

⁴⁰ Duhigg, 118.

⁴¹ Duhigg, 120.

⁴² Duhigg, 125.

⁴³ Duhigg, 127.

potential to make people re-evaluate what they believe is possible. Even if you don't achieve your initial stretch goal, striving to achieve will likely push you into opportunities you couldn't even have imagined.

Mental Contrasting and Implementation Intentions

Gollwitzer and Oettingen propose two beneficial goal-related self-regulation strategies: mental contrasting and implementation intentions. "In mental contrasting, people first imagine the fulfillment of a wish or fantasy and then reflect on the present reality that stands in the way of attaining the desired future."⁴⁴ This strategy is set apart from the less beneficial strategies of "indulging" and "dwelling." Indulging is when a person gets stuck on wishes and fantasies, and dwelling is when a person is stuck on the challenges of the present reality. This problem-solving exercise allows people to clearly evaluate the possibility of success, and then, if it seems possible, encourages strong commitment.

Implementation intentions refers to "planning out goal striving in advance."⁴⁵ Rather than merely intending to achieve a goal, greater likelihood of success comes from intending to perform a plan to achieve that goal.

Gabriele Oettingen and colleagues combined the concepts of mental contrasting and implementation strategies to create a clinical intervention called MCII (Mental Contrasting and Implementation Intentions). In Oettingen's book, *Rethinking Positive Thinking*, she describes the system of MCII with the acronym WOOP.⁴⁶ WOOP is an exercise for setting goals and a plan of action toward those goals. The four steps are:

⁴⁴ Gollwitzer and Oettingen, "Goal Pursuit," 211.

⁴⁵ Gollwitzer and Oettingen, 218.

⁴⁶ Gabriele Oettingen, *Rethinking Positive Thinking: Inside the New Science of Motivation* (New York: Current, 2014), 133.

1. Wish - First, “think about one wish or concern in your personal or professional life, something that is challenging but that you think is possible for you to achieve in a given period of time.”⁴⁷
2. Outcome - Visualize “the best thing that you associate with fulfilling your wish or solving your concern...as vividly as possible.”⁴⁸
3. Obstacle – Think about what stands in your way. “Find the most critical, internal obstacle that prevents you from fulfilling your wish or solving your concern.”⁴⁹
4. Plan - Think about “what you can do to overcome or circumvent your obstacle...Create an if-then plan. ‘If obstacle x occurs, then I will perform behavior y.’”⁵⁰

WOOP is a useful tool for developing a plan of action for trombone practice in a positive and productive way. For example, imagine you are having trouble “finding time” to perform a daily trombone routine. Your wish would be to perform a routine every day. The outcome would be improvement of performance and consistency. The obstacle might be something like a busy work schedule. One plan might be, “If I have a busy work day, then I can shift my sleep schedule 45 minutes earlier to have practice time in the morning.” Alternatively, the plan could involve a reprioritization of activities to make time for practice.

⁴⁷ Oettingen, 134.

⁴⁸ Oettingen, 134.

⁴⁹ Oettingen, 134.

⁵⁰ Oettingen, 136.

Using Role Models to Help Define Your Values and Goals

Some students may initially struggle when asked to come up with personal goals. It can prove difficult to translate a general passion into focused action. A way to focus values and goals is to consider role models. Who are people the student looks up to both inside and outside of music? What positive activities are they engaged in? People unconsciously model others, but a brainstorming session can bring these values to light.

Role models are considered in multiple spheres of life. A jazz trombonist finds models in other trombonists, in other musicians, in public figures, and in friends and family. Jazz trombone undergraduate students might want to begin within the musical sphere. What is the ideal trombone sound? What defines a good trombone player? What trombone players have come closest to achieving that ideal sound? The more advanced players get, the more refined and specific their conception of the ideal becomes. The next level extends to all musicians. What is the ideal musician? How does their music bring about positive change in their lives and in the lives of others? These questions spark research and exploration. A student benefits from actively exploring music and trombone performances of all styles and contexts. Considering role models, in and out of music, can help define values and direct goals all the way to the highest levels of aspiration.

Once role models are identified, the next consideration is *how*? How do these people do what they do? How did they get to where they are now? Research into these questions can offer ideas for student action.

For an example in the musical sphere, a jazz trombone student might begin by analyzing the playing of players that come closest to his/her concept of the ideal. Ask these questions: *How do he/she play like that? What techniques is he/she using? What*

musical vocabulary is he/she using in improvisation? This musical curiosity guides study and helps define goals.

The WOOP concept is highly applicable in this process. The role model helps define the goals or “wish” of the student (*I want to play like that!*). They imagine the possible “outcome” of integrating the positive qualities of the role model in performance (*That would be fun!*) Next, through a process of mental contrasting between the role model and the student, the student inventories the “obstacles” to performing in such a way (*I need to learn to multiple tongue, gain flexibility, and master diminished scale patterns*). Finally, the student creates a “plan” to overcome those obstacles (*I’m going to prioritize the deliberate practice of those techniques*).

CHAPTER 7

THE PROCESS OF IMPROVEMENT

“Deliberate practice takes place outside one’s comfort zone and requires a student to constantly try things that are just beyond his or her current abilities. Thus it demands near-maximal effort, which is generally not enjoyable.”⁵¹

As Ericsson writes, “deliberate practice takes place outside of one’s comfort zone” in a region “that is just beyond... current abilities.” That place “just beyond” is a level of difficulty that is challenging but not overwhelming. The mechanism of deliberate practice, then, is adjusting the difficulty of tasks to maintain the appropriate level of challenge. This is done by varying the components of trombone technique or by varying the musical material. Breaking down the technical components and the methods of varying those components is a useful exercise when setting out to design an effective daily routine. In practice, music can be adjusted in two ways to reach an appropriate level of difficulty:

1. By systematically adjusting the technical variables.
2. By systematically modifying the musical material.

Adjusting Technical Variables

Trombone technique can include the following components: posture, breath, embouchure setting, sound, endurance, range, articulation, partial shift, and slide movement. These technical components can be systematically varied to maximize playing efficiency and increase/decrease the difficulty level to the appropriate level of challenge. Variables include transposition, speed, volume, and duration. For example, an

⁵¹ Ericsson and Poole, 99.

idea can be made more difficult by transposing it into a higher register, by speeding it up, by playing it louder, or by playing it for a longer duration. To make it easier, it can be transposed into a more comfortable range, reduced/increased in speed, or reduced/increased in volume. Once it is within the level of current ability, then a variable of focus can be gradually changed until it pushes just beyond the comfort zone, but not so much that the challenge is overwhelming.

By breaking down technical challenges in this way, players can design playing exercises to fit their own needs. This process employs critical thinking skills that put the student in charge of his/her own learning.

Take for example this melodic fragment from the melody of the Charlie Parker song “Donna Lee.”

Example 1: “Donna Lee”



This song is often played at fast tempos and requires a relatively high level of technical mastery on trombone to execute cleanly. How could this fragment be varied to adjust difficulty?

Slow it down (in time or perhaps in a more flexible rubato manner)...

Example 2: “Donna Lee” Slowed Down

♩ = 72
mf

Play it soft...

Example 3: “Donna Lee” Played Soft

♩ = 120
mp

Transpose it...

Example 4: “Donna Lee” Transposed

♩ = 120
mf

Modifying the Musical Material

Difficulty can also be adjusted by fragmenting or simplifying the musical idea. The first triplet might pose a challenge in practice. In that case, it might be isolated by fragmenting the melody like this:

Example 5: “Donna Lee” Fragment



Or it might be simplified like this:

Example 6: “Donna Lee” Fragment Simplified



Fragments like these can be adapted into exercises targeting specific playing challenges

Example 7: “Donna Lee” Fragment Exercise



And then elaborated in countless ways:

Example 8: “Donna Lee” Fragment Exercise



In this way, a creative solution to a technical problem can bridge into composition and improvisation material.

Cognitive Variables for Difficulty Adjustment

Difficulty can be adjusted in similar ways for cognitive challenges such as memory, perception, or response timing. For instance, the concepts above are applicable for practicing jazz improvisation. If you were practicing improvising over a chord progression you could adjust difficulty by:

1. Slowing down to a comfortable tempo.
2. Transposing into an easier key.
3. Isolating challenging fragments of the progression.

Again, manipulating practice material in this way can yield creative results. Master jazz improvisers such as John Coltrane composed music that isolated challenging chord progressions for practice.

Progressing Step by Step

Deliberate practice progresses step-by-step in technical difficulty and complexity of musical concepts. One of the greatest and most frustrating practice challenges is recognizing and addressing gaps in ability or bad habits of technique that result from skipping developmental steps. A teacher can help identify gaps in knowledge and bad habits, but these interventions require serious commitment from the student. These deficits in ability can become prohibitive if not addressed.

Feedback

Feedback loops govern many aspects of the human body, from body temperature and hunger to the development of skill via myelin in the brain.⁵² In music practice, feedback lets us compare our real-life playing to our internal representation of ideal performance.

We receive immediate feedback every time we practice directly from the sounds and sensations produced when playing. However, our self-perception is thrown off by our shifting moods, our unique perspective from behind the bell, and the limitations of how many elements we can pay attention to at a given moment during performance.

To counter our skewed perceptions, valuable feedback comes from other people. A knowledgeable teacher or a colleague can notice playing issues you would never have noticed on your own. Audience reactions at a concert also provide feedback on the effectiveness of your performance.

In the absence of other people, we can expand our perspective through the use of practice tools. One of the most powerful tools is video/audio recording. Listening back to a recording lets us perceive ourselves with focused attention closer to the way another person might. Video recording can provide insights into physical playing habits that may be interfering with performance. Observing these bad habits on video provides awareness in a way that hearing them described by another person cannot. The more traditional and low-tech version of this is performing in front of a mirror.

In performance, a person's tempo or meter may change without them being aware. Concentration on other musical aspects can max out our attention and lead to

⁵² Daniel Coyle, *The Talent Code*, 30-53.

unconscious time warps. The ability to maintain tempo and meter is developed into an automated and unconscious skill through smart practice with a metronome or time-keeping backing track. A steady-clicking is helpful when pushing extreme fast and slow tempos, but at medium tempos it can be an unnecessary crutch. Valuable metronome techniques offer reference beats without explicitly keeping time for the player. Examples of this include spacing out the soundings of the click, cutting the metronome in and out and placing the click on less common parts of each bar, and programming the click in a cross rhythm (such as dotted half notes over 4/4 time).

An additional tool for feedback is the practice diary. Keeping a daily practice diary can provide a deeply personal method of 1) monitoring progress over time, 2) supporting the ritual of daily practice, 3) maintaining practice directed toward specified goals, 4) journaling observed thoughts and feelings during practice, and 5) capturing musical ideas for improvisation and composition. Players can experiment to find the organizational method that works best to support an evolving daily routine and long-term performance goals.

Mental Representations

Ericsson and Poole define a mental representation as

“a mental structure that corresponds to an object, an idea, a collection of information, or anything else, concrete or abstract, that the brain is thinking about...They make it possible to process large amounts of information quickly, despite the limitations of short-term memory.”⁵³

Our developing abilities as jazz trombonists are a result of increasingly detailed mental representations of the musical material and of the physical actions of

⁵³ Ericsson and Poole, 58-61.

performance. A professional jazz trombonist will develop the ability to experience music and the corresponding images and feelings within the mind. This is what psychologist Edwin Gordon referred to as “audiation.”⁵⁴ An advanced player will be able to represent musical structures on many levels. I break down mental representations of music into three primary senses.

- The way the music sounds
- The way the music looks when notated
- The way the music feels when played on an instrument.

Training these represented “senses” is one of the main goals of ear training courses. As an example, let’s consider some musical material trombonists have a close relationship with. Consider the Bb below middle C.

Example 9: Bb



Trombonists play this note thousands of times, and likely have a detailed representation of that note. Even advanced trombonists without absolute pitch will likely be able to sing this note within a half step without an external reference point based on the strength of the representation. The representation of this one note may be made up of:

- its sound when played on trombone
- the feeling when played on trombone
- notation on the page in various clefs

⁵⁴ Edwin E. Gordon, “All About Audiation and Music Aptitudes,” *Music Educators Journal* 86, no. 2 (September 1999), 41, *Academic Search Premier*, EBSCOhost.

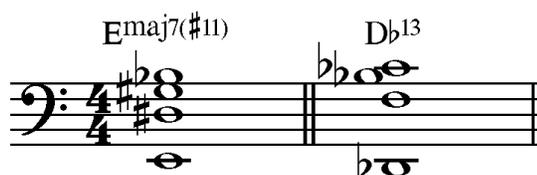
That was a single note. Next, let's consider the note Bb as related to more complex musical structures. A musician can imagine the note as part of various triads and chords: the root of Bb major, the fifth of Eb major, the third of G minor, etc.

Example 10: Triads Containing Bb



A more advanced jazz musician could imagine the Bb (A#) as a #11 extension on an Emaj7 chord or the feeling of the Bb in a half step crunch with the Cb on a Db13 chord.

Example 11: Seventh Chords Containing Bb



By playing and reading music, people develop their representations. The more frequently a musical concept or structure is encountered, the stronger and more detailed the representation gets. However, certain musical structures are rarely encountered on the trombone, if ever. The trombone can generally play only one note a time in a limited pitch range. The extreme high notes of a piccolo can only be experienced vicariously, so those pitches often remain hazy in the mind of a trombonist. Similarly, without the ability to play chords harmonic concepts are slower to develop for trombonists than for pianists. Representations aren't limited to pitches. A drummer develops a mapped representation

of polyrhythms across four limbs, but playing trombone does not likely develop such a complex relationship with rhythms.

Connecting diverse physical actions to sound strengthens the detail of mental representations. The jazz trombonist needs detailed representations of harmonic and rhythmic structures for effective improvisation in the increasingly complex styles of contemporary jazz performance, and these representations will be learned faster by supplementing trombone playing with practice on other instruments.

Mental Practice

Mental Representations of music facilitate trombonists to practice musical material away from the horn. Advanced students can utilize “mental practice” to run through difficult passages, memorize music, and to further strengthen the quality of the representations themselves. This practice can be paired with singing for feedback. For example, an advanced music student can develop the ability to rehearse a jazz standard while commuting to school by trying to sing through the roots, thirds, and sevenths. In addition, mental practice techniques may be utilized to develop musical material during necessary periods of physical rest away from the trombone.

There is a significant body of research that supports the benefits of mental practice in music. In an overview of mental rehearsal studies, Hodges and Sebald identify numerous studies in which brain activity imaging techniques revealed similar activation patterns regardless of whether or not a musician was physically playing an instrument in practice.⁵⁵

⁵⁵ Hodges and Sebald, 242-243.

An especially relevant experiment was conducted by Stewart L. Ross of Mankato State University in Minnesota.⁵⁶ Ross analyzed the etude performance improvements of thirty college trombone students under various practice conditions including physical practice only, mental practice only, mental and physical combined, mental practice with “simulated slide movement,” and no practice. He found significant positive improvements in performance resulting from mental practice, and the most dramatic improvements came from a combination of mental and physical practice techniques.

⁵⁶ Stewart L. Ross, “The Effectiveness of Mental Practice in Improving the Performance of College Trombonists,” *Journal of Research in Music Education* 33, no. 4 (Winter 1985): 221-230. <http://www.jstor.org/stable/3345249>.

CHAPTER 8

FULL ATTENTION AND CONSCIOUS ACTIONS

“Deliberate practice is deliberate, that is, it requires a person’s full attention and conscious actions. It isn’t enough to simply follow a teacher’s or coach’s directions. The student must concentrate on the specific goal for his or her practice activity so that adjustments can be made to control practice.”⁵⁷

Effective practice requires concentration. Musicians should do whatever they can to minimize distractions in the practice room so that they can focus on the challenges at hand. I place distractions into one of two categories: external distractions or internal distractions. This chapter will outline strategies for minimizing both forms of distraction based on Cal Newport’s concept of deep work and the established practices of mindfulness.

External distractions are found outside of the body. These sources of distraction commonly include smart phones, computers, television, other people, and worldly noises (construction, other people practicing). It is impossible to completely tune out the outside world, but many of the distractions can be easily minimized.

Internal distractions are found within one’s own mind. These distractions take the form of thoughts and emotions. For example, an argument with a friend might leave residual anger that interferes with concentration. Anxiety about the music practice itself is also a common internal distractor for many musicians.

Internal and external distractions are interconnected. Often fixation on external distractions is a result of internal unrest. Anxiety about practice might even cause someone to compulsively seek out external distractions such as social media or a snack

⁵⁷ Ericsson and Poole, 99.

from the refrigerator. In the preparation of this essay, I have even found myself going out of my way to clean the bathrooms in my apartment rather than sit down to work!

Minimizing External Distractions

External distractions are usually easier to deal with than internal distractions. The first step is to find an appropriate place for practice. The ideal place is quiet, private, and devoid of objects that are not required for music practice. It is a place where the trombonist can practice loud without worry of bothering others. Also, the practice tools and materials (metronome, chair, sheet music, recording equipment, phone charger, etc) are all in place so you do not need to interrupt your work to look for anything in the middle of your session.

Smart phones and computers are valuable tools in the practice room. They can function as your metronome, tuner, recording device, and media player all in one. However, these powerful tools can also be the biggest external distractors. Apps and online content creators compete for attention by barraging customers with notifications, chimes, and vibrations. However, once people become aware of the effect phones and computers are exerting on attention, they can take charge. Actions to be taken include turning off Wi-Fi when not needed, switching to airplane mode, or entering “do not disturb mode.” Serious social media addicts might want to try deleting the most distracting apps off of phones completely. Sometimes the apps prove to be less essential than they seem.

Many trombonists watch television while practicing tedious aspects of technique such as long tones or fast tonguing. This goes against the ideals of deliberate practice. The mind has a limited amount of attention available at a given moment. When watching

television, the available attention for trombone practice is reduced even further. This lack of full attention can lead to slower progress and even bad playing habits. Yet, many professionals recommend television-watching as a practice strategy. Perhaps television represents a compromise. Efficiency is reduced in favor of a less tedious multi-tasking practice session. Practicing while watching TV may be better than not practicing at all, but surely does not meet the qualifications of deliberate practice.

Cal Newport, professor of computer science at Georgetown University, advocates for the high value of this type of focused, uninterrupted work in his book, *Deep Work*. Newport defines deep work as “professional activities performed in a state of distraction-free concentration that push your cognitive capabilities to their limit. These efforts create new value, improve your skill, and are hard to duplicate.”⁵⁸ He hypothesizes that this work is becoming both increasingly rare and increasingly valuable due to cultural changes surrounding technology.

Newport proposes four general rules. The first is to “work deeply,”⁵⁹ in a focused way free from interruption. The second rule is to embrace boredom.⁶⁰ What Newport means by this is actively training the mind to be comfortable without constantly seeking distraction (“fleeing boredom”). This is directly connected with the benefits of mindfulness practice as discussed in the next section. One of his suggestions to ease away from the distractions of technology is to schedule internet use. This minimizes the automatic email and social media-checking behaviors that many people unconsciously slip into. Newport’s third rule is to quit social media.⁶¹ As media creators, musicians have

⁵⁸ Cal Newport, *Deep Work* (New York, Grand Central Publishing, 2016), 3.

⁵⁹ Newport, *Deep Work*, 95-154.

⁶⁰ Newport, 155-180.

⁶¹ Newport, 181-214.

practical professional reasons to maintain social media presence. However, even musicians might benefit from re-evaluating their relationship with such services. Applying Newport's idea of scheduling internet time, it might be beneficial to schedule time(s) dedicated to checking and maintaining social media and email rather than have those activities permeate throughout all waking hours. Newport's final rule is to "drain the shallows."⁶² This refers to limiting unnecessary shallow work activities such as emailing and meetings that can fragment one's schedule and interfere with deep work.

Minimizing Internal Distractions

Managing internal distractions poses a greater challenge. One cannot flip a switch in the mind to mute irrelevant thoughts and feelings. However, there are methods for developing concentration and focused awareness. This section draws advocates for the relevance of mindfulness practice to improving concentration in the practice room.

Though mindfulness techniques have been a part of Buddhism and other experiential practices for thousands of years, the concept has proliferated exponentially throughout the sciences since 1980.⁶³ Bishop and colleagues define mindfulness as follows:

We propose a two-component model of mindfulness. The first component involves the self-regulation of attention so that it is maintained on immediate experience, thereby allowing for increased recognition of mental events in the present moment. The second component involves adopting a particular orientation toward one's experiences in the present moment, an orientation that is characterized by curiosity, openness, and acceptance.⁶⁴

⁶² Newport, 215-256.

⁶³ Kirk Warren Brown, J. David Creswell, and Richard M. Ryan, "Introduction: The Evolution of Mindfulness Science," *Handbook of Mindfulness: Theory, Research, and Practice* (New York: Guilford Publications, 2015), 2, ProQuest Ebook Central.

⁶⁴ Bishop et al., "Mindfulness: A Proposed Operational Definition," *Clinical Psychology: Science and Practice* 11, no. 3 (September 2004), 232. 10.1093/clipsy.bph077.

The ability to regulate attention in the practice room with a curious, open, and accepting mind is essential for effectively approaching musical challenges. This state allows for constructive self-reflection and a letting-go of negative and destructive thoughts.

Researchers in the field of “positive psychology” have focused on the ability of mindfulness training to “optimize psychological and behavioral functioning.”⁶⁵

Optimized functioning is necessary for pushing the limits of human music performance potential.

What is Mindfulness Practice?

Shauna L. Shapiro and Hooria Jazaieri break mindfulness into three synergistic processes: (1) intention, (2) attention, and (3) attitude.⁶⁶ Intention refers to reflecting on why one is practicing mindfulness. Attention refers to one’s focus on the present moment. Attitude refers to the emotional quality someone brings to the practice. This combines to create the definition from Shapiro and Carlson: “Mindfulness practice involves intentionally attending to the present moment with openness, acceptance, and care.”⁶⁷

How Do You Develop Mindfulness?

Mindfulness practitioners commonly engage in meditation to develop attention regulation skills. In Marieke K. van Vugt’s overview of the cognitive benefits of mindfulness practice, she breaks the practice into two major styles of meditation: focused

⁶⁵ Kirk Warren Brown, “Mindfulness Training to Enhance Positive Functioning,” in *Handbook of Mindfulness: Theory, Research, and Practice* (New York: Guilford Publications, 2015), 312, ProQuest Ebook Central.

⁶⁶ Shauna L. Shapiro and Hooria Jazaieri “Mindfulness-Based Stress Reduction for Healthy Stressed Adults” in *Handbook of Mindfulness: Theory, Research, and Practice* (New York: Guilford Publications, 2015), 270, ProQuest Ebook Central.

⁶⁷ Shapiro and Jazaieri “Mindfulness-Based Stress Reduction for Healthy Stressed Adults,” 270.

attention and open awareness.⁶⁸ In focused attention, the practitioner maintains focus on a given object, such as the breath. This develops improved attention regulation and as a result, strengthens memory and perception abilities. Focused attention may improve the intensity and clarity of experiences as they are perceived and coded into short-term working memory. In open awareness, the practitioner observes “all salient stimuli as they occur without pursuing them in thought.”⁶⁹ This develops “cognitive monitoring” and “attention allocation” abilities. As music practice relies heavily on the processes of attention, perception, and memorization, these benefits are invaluable to musicians.

K. van Vugt concludes by pointing out the key interactions in meditation between cognition and attention. She writes, “As one is less focused on oneself, one has more cognitive capacity (or mental resources) left to perform other cognitive tasks that require attention and working memory.”⁷⁰ This connects to Csikszentmihalyi’s conception of the “flow” state, which will be discussed further in the next chapter. Mindfulness practice seems to facilitate the flow state.

Negative emotions can interfere with the music. In a review of studies on the emotional benefits of mindfulness, Arch and Landy write, “These sample findings suggest that trait mindfulness functions to promote more sustained contact with aversive experience (voluntary exposure), dampened appraisal of negative stimuli, less suppression and intensity of negative affect, greater emotional clarity, and more effective

⁶⁸ Marieke K. van Vugt, “Cognitive Benefits of Mindfulness Meditation,” in *Handbook of Mindfulness: Theory, Research, and Practice* (New York: Guilford Publications, 2015), 190, ProQuest Ebook Central.

⁶⁹ K. van Vugt, “Cognitive Benefits of Mindfulness Meditation,” 190.

⁷⁰ K. van Vugt, 203.

down-regulation of negative emotion.”⁷¹ The increased ability to effectively process feelings such as self-doubt and anxiety about music performance may help to sustain effective practice strategies while working through personal challenges.

⁷¹ Joanna J. Arch and Lauren N. Landy, “Emotional Benefits of Mindfulness,” in *Handbook of Mindfulness: Theory, Research, and Practice* (New York: Guilford Publications, 2015), 211, ProQuest Ebook Central.

CHAPTER 9

DEVELOPING MOTIVATION

Angela Duckworth's Grit Theory

If deliberate practice takes place outside one's comfort zone, and becoming an expert takes upwards of 10,000 hours of such uncomfortable practice, then developing and sustaining motivation becomes a key issue in building expertise.

Some of the helpful concepts in motivation research come from the recent work of psychologist Angela Duckworth. Duckworth's work has focused on a personality trait she refers to as "grit." Grit is defined as "passion and perseverance toward long-term goals."⁷² Grit is the trait that allows people to sustain deliberate practice focused toward goals over long periods of time, perhaps even over a lifetime. Note that goals are central to yet another concept of professional development.

Duckworth breaks grit into the four psychological assets of interest, practice, purpose and hope.⁷³ Interest refers to the passion a person has for what they do. Practice refers to deliberate practice as outlined earlier in the essay. Purpose refers to connecting your work to the well-being of others. Hope refers to the ability to bounce back after encountering failures. An important detail is the idea that grit can be developed by cultivating its four assets.

Passion

Many undergraduate music students enter college with a focused passion that is unusual in people at that age. They are self-proclaimed musicians. I've often heard the

⁷² Duckworth, *Grit*, 269.

⁷³ Duckworth, 91.

following advice given to young musicians: “If you could see yourself doing something else (rather than music), than you should do something else.” The idea is that a musical career is more difficult than most other careers, so you need complete commitment. Many people take that advice to heart. Because of this imposed requirement of total passion and commitment, perhaps young music students are pressured to divide into groups polarized between those whose self-image is completely tied up in being a career musician and those who choose alternate career paths.

The theory behind grit presents an interesting reciprocal relationship between passion and commitment. Passion leads to a stronger commitment, yet commitment leads to stronger passion. The initial musical spark leads students to study music in college, and then the committed successful study of music in college fuels the passion to continue into the professional sphere.

The Habit Loop

In the book *The Power of Habit*, Charles Duhigg provides an introduction to the science of habits.⁷⁴ When a person repeats a task, the brain adapts to automate the behavior, thus saving brain power and space in short-term memory. For example, this is the way a trombonist learns to play. A beginner consciously places the slide in the correct position, but an advanced trombonist correctly places the slide without thinking about the movement. This unconscious habitual behavior can direct our actions throughout our day in a mechanism called the habit loop. The habit loop consists of a cue, a routine, and a reward.⁷⁵ The cue is a perceived signal to perform a learned behavior, the routine is the

⁷⁴ Duhigg, Charles, *The Power of Habit* (New York: Random House, 2012). Overdrive e-book

⁷⁵ Duhigg, *The Power of Habit*.

behavior, and the reward is a positive outcome that strengthens the impulse to repeat the behavior when exposed to the cue again. The loop is driven by craving for the reward resulting from chemical processes in the brain. For the trombonist the cue is the musical information read or heard, the behavior is to move the slide to the correct position, and the reward is the sounding of the intended note.

These habit loops unconsciously drive our behavior throughout the day. The chime of a smart phone provides a cue to look at our phone. The smell of coffee in a coffee shop provides a cue to buy a cappuccino. A string of these habits creates the elements of a daily routine from getting up in the morning to going to bed at night. Companies use sophisticated advertising and product development to create these craving-driven habit loops.

Two positive ideas come from being aware of these mechanisms within ourselves. The first is we can increase our awareness of unconscious habits. The second effect is that we can utilize the habit loop mechanism to program positive behaviors within ourselves.

Unfortunately, it can be difficult to change a bad habit. Duhigg presents the following as the golden rule of habit change: “You can’t extinguish a bad habit, you can only change it.”⁷⁶ However, he continues to explain that a habit can be changed by switching out the routine but maintaining the same cue and reward.

Developing Routines to Promote Practice

For many people, the hardest part of practicing is getting started. A trombonist might have every intention of practicing, but the day can seem to simply slip by. Through

⁷⁶ Duhigg.

thoughtful prioritization, schedule-planning, and repetition, we can program our work days to reinforce habits of deliberate practice.

As a doctoral student confronted with an unprecedented number of simultaneous projects, I was forced to find strategies to budget time for everything. I began by contemplating the number of hours I could realistically work in a given week. The standard work week is usually set at forty hours. However, most people do not have enough mental energy available for truly focused work for forty hours a week. The value of time spent in deliberate practice (and time in general) becomes clear. With a schedule already filled with classes, rehearsals, concerts, and other obligations, fitting in everything becomes a challenge.

When facing several challenging projects at once, prioritization is essential. I took an inventory of all the professional and personal projects I was working on. Then I put them in order of importance for fulfilling my intermediate and long-term goals. In this exercise I found that some things had to be dropped to make room for the most important projects. Once I had my priorities clearly in mind, I created a ratio for dividing work time between each current project. Then I scheduled time blocks for work dedicated to each project.

To make a busy work schedule more manageable, musicians can apply the concepts of habit formation to create routines and “ritualize”⁷⁷ the periods of focused practice. Many people wake up and brush their teeth in the morning without the need to think much about it. In this way they can automate many aspects of the day to conserve energy for creative work and practice. By creating a repeating work routine, musicians

⁷⁷ Cal Newport, 117.

can limit the energy spent transitioning between activities and getting motivated to practice.

This automation of behaviors interestingly plays against previously discussed concepts of mindfulness. Mindfulness practice involves cultivating awareness of habits of thought and behavior. Perhaps what these ideas suggest is a mindful application of our own tendency toward mindlessness. Through mindfulness, we can proactively guide the habits and routines we establish to fulfill our goals.

Flow

Many of these concepts for effective practice and motivation paint a negative picture of effective practice as something uncomfortable that must be endured through grit, perseverance, and sheer will power. In seemingly direct opposition to this negative view is the concept of flow as introduced by Mihalyi Csikszentmihalyi.⁷⁸ Susan Jackson reviews the nine dimensions of the flow experience.⁷⁹ They are:

- Challenge-skill balance
- Action-awareness merging
- Clear goals
- Unambiguous feedback
- Concentration on the task at hand
- Sense of control
- Loss of self-consciousness
- Time transformation

⁷⁸ Csikszentmihalyi, *Flow*.

⁷⁹ Susan A. Jackson, "Flow," in *The Oxford Handbook of Motivation* (Oxford: Oxford University Press, 2012), 128-130.

- Autotelic (intrinsically rewarding) experience

Comparing these dimensions to Ericsson's deliberate practice reveals that the two concepts in fact share many similarities. Both emphasize the importance of clear goals, an appropriate level of challenge relative to ability, feedback, and concentration. So why aren't deliberate practice and flow always one and the same experience?

I propose that the interaction between the two concepts lies in 1) differing points of balance between ability and difficulty level and 2) musician mindset. Enjoyment in the flow state comes from having a sense of control over challenging situations. This means that ability closely matches difficulty. Deliberate practice, on the other hand, requires doing something that a person is not yet able to do. The learning process involves repeatedly failing to do something. Abilities do not yet match difficulties, and the person does not have control over the musical material.

Deliberate practice can help players experience states of flow in the future by boosting skill level to match challenges. A flow state in performance becomes the payoff for improvement. However, this flow is fleeting. Maintaining a flow state in this way requires progressively matching skills to meet challenges.

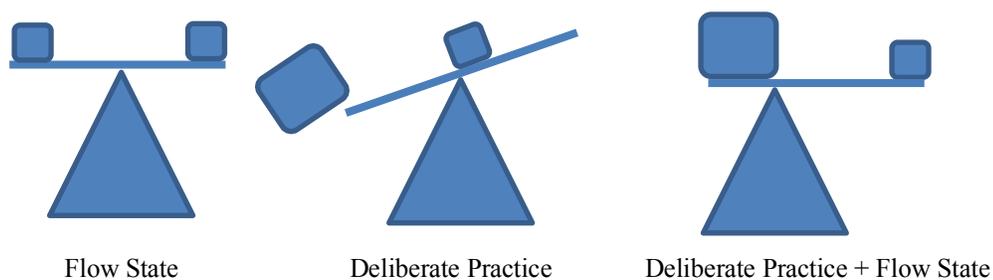
How does a person then maintain a flow state during deliberate practice? This is where the second variable of musician mindset comes into play. Psychologist Carol Dweck distinguishes between two mindsets: the fixed mindset and the growth mindset.⁸⁰ The fixed mindset maintains a belief that one's personality, intelligences, and talents are more-or-less set. The growth mindset holds a belief in the power to change one's self through practice. People with a growth mindset may be able to maintain a flow

⁸⁰ Carol Dweck, *Mindset*.

equilibrium despite the higher levels of challenge necessary for deliberate practice because they derive a sense of control not over the musical material, but over their own musical development.

I propose the following symbolic representation of the balance between challenge and skill. In a flow state, challenge and skill are the same, so they are evenly balanced when set in opposition. A fixed mindset places the fulcrum directly in the center. Therefore, in deliberate practice, where challenge is greater than ability, the flow state is disturbed. The growth mindset allows for the movement of the center of balance, allowing for deliberate practice in a flow state despite greater challenge.

Figure 9.1: Balance of Challenge and Skill in Three Scenarios



CHAPTER 10

PUTTING IT TOGETHER: THE SYLLABUS

In this essay, research was guided by the following three questions:

1. What unique challenges do jazz trombonists face in practice?
2. What concepts from psychology will help overcome those challenges?
3. How can the concepts be integrated into a syllabus for an undergraduate jazz trombone studio?

This chapter will first summarize the ideas from this essay relevant to questions one and two. Then in consideration of question three, the final section will offer ideas for integrating the research into an undergraduate jazz trombone syllabus.

Question 1: Unique Practice Challenges of Jazz Trombonists

The challenges unique to jazz trombone involve compensating for the limitations of the trombone's slide and range. The advanced jazz trombone student can do so by emphasizing some or all of the following elements of technique in practice:

1. Upper register
2. Sustaining loud volumes
3. Single Tonguing
4. Multiple Tonguing (Double Tonguing/Doodle Tonguing)

These aspects of technique are not completely unique to trombone and are practiced in varying degrees by many other instruments. However, these aspects of technique target the specific weaknesses of the trombone in a jazz culture that values virtuosic speed and technical prowess. For achieving the common jazz performance goal of approaching virtuosity, trombonists can benefit from focusing extra energy on these four elements of

technique. It is important to note that practicing these elements should not preclude practice of the universally important elements including sound, time, and intonation.

Question 2: Concepts from Psychology Research

This essay explored concepts from research into the psychology of expertise and of motivation. After adapting deliberate practice to include motivation concepts, I propose this framework for effective jazz trombone practice.

1. Draw from proven jazz trombone techniques.
2. Set goals to connect jazz trombone practice to something greater.
3. Continuously challenge yourself in the practice room.
4. Train your attention.
5. Prioritize and ritualize your practice.
6. Foster a strong belief in your ability to improve.

This adapted framework shares many similarities to Ericsson's deliberate practice but takes a more holistic approach to effective practice. It deemphasizes the inner workings of the practice mechanism such as feedback and mental representations, and instead emphasizes ideas to connect practice to personal values and life purpose.

Question 3: Integrating the Framework into an Applied Lesson Syllabus

The final step of this project is to apply the concepts of the framework to create an applied lesson syllabus for undergraduate students. I consider a primary goal of college teaching to be to help students take charge of their studies and become self-directed learners and critical thinkers. Undergraduate study is a transition towards independence of action and thought. The habits developed at this critical stage can set up students for a life-time of focused learning and growth.

To help students develop into self-directed learners, the goal of the applied lesson curriculum outlined in the syllabus is to give students significant control over the direction of their jazz trombone studies while still maintaining structure and student work accountability.

A challenge of developing this type of curriculum is finding the appropriate balance between student freedom and conformity to program-defined standards. A shared body of knowledge, skills, and traditions is necessary to help define the shared musical values of jazz performance within the university community and beyond. Common program standards will include knowledge of required repertoire (tune lists), notable figures and styles from music history, and theoretical knowledge. It will also include essential skills such as the ability to read and write music. Students accepted into a jazz program presumably have a strong interest in learning these skills, so hopefully there is significant overlap between student interests and program standards.

This syllabus will be beneficial in its emphasis not on practice content, but on the process of practice itself. Based on the proposed framework, the syllabus will include the following:

- A system for defining goals directed toward achieving visions of personal artistry and community.
- The adapted framework for effective practice.
- Ideas for developing a daily trombone practice routine.

The system for defining goals is perhaps the main innovation of this syllabus design. The student is given a series of questions designed to promote the consideration of values and goal-development. Long-term goals determine the objectives for each

college term. The objectives are made real through the planning of a jazz trombone-related project. The student begins each semester by proposing a jazz trombone project, and then the teacher and student agree upon its terms. Ideally, the project is something that can be shared with other people, such as a concert, a recording, or a published work.

After the goal and project planning section comes the introduction of the adapted framework for effective practice. These serve as an introduction to themes that will be reinforced in lessons.

The final section emphasizes the need for a daily practice routine, but again places the planning in the hands of the students. The teacher supervises the students' routines and offers suggestions but does not impose a strict regimen upon them.

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APPENDIX A

Syllabus for Undergraduate Jazz Trombone Studio

SYLLABUS FOR
UNDERGRADUATE STUDENTS IN A
JAZZ TROMBONE STUDIO

By

William Wulfeck

(email)

(phone number)

(office room number)

Office hours: by appointment

University|School of Music

Class Number, 1 or 2 credits|Term and Year

Studio Class Time and Place TBD

Prepared May 2018

Introduction:

Your enrollment in this course represents a commitment to focused development and improvement of jazz performance on trombone. “Jazz” in its contemporary conception is a broad label. To clarify, I consider specialized lessons in “jazz” performance to refer to an emphasis on the following:

- Internalization of historical jazz and related performance styles and settings (early jazz, swing, bebop, hard bop, R&B, funk, fusion, etc)
- Improvisation
- Development of a unique voice as a performer and composer

Lessons will include strategies for the maintenance and development of technical fundamentals in the service of achieving musical goals.

As a teacher, I want to facilitate you, the student, to take charge of your own learning and career development by actively reflecting upon your goals and planning a strategy for achieving those goals. I will help you along the way by providing guidance, feedback, and a level of accountability through the assignment of grades. However, your musical journey is entirely up to you. I can help point you in the right direction, but you must take the steps.

I want you to leave college with the skills and self-motivation to direct your own learning for a lifetime of personal musical development.

This syllabus draws from the deliberate practice framework developed by psychologist Anders K. Ericsson and colleagues. The framework establishes principles for making the most effective use of your practice time. The strategies for effective practice are supplemented with strategies for building and maintaining motivation.

Course Objectives A student completing this course will

- Set clear and reasonable performance goals as approved by the instructor
- Plan and utilize a regular routine for developing/maintaining trombone technique
- Develop at least one project as agreed upon with instructor to share with other people such as a concert, video, recording, transcription set, or journal article
- Fulfill responsibilities as a member of the jazz trombone studio including attending required rehearsals, meetings, clinics, etc. and learning all required repertoire as outlined by the jazz department.

Possible Topics of Study Based on Student Needs

- Technical facility: cleaner, faster, higher, lower, more relaxed, etc.
- Stylistic interpretation: Playing in the style of...
- Improvisational fluency: playing the “changes”
- Improvisational organization: soloing compositionally, creating a narrative, “telling a story” etc.
- Sight reading: reading swing or straight eighths, tenor clef
- Composition and Arranging: Writing for the trombone

- Aural skills: Perceiving musical structures
- Managing performance anxiety: Negative thoughts, fear, etc.
- Prioritization/time management: Finding time to practice, Building positive work/life habits
- Music business: Finding playing opportunities, publishing music, self-promotion

Project Ideas:

Live Performance

Recital(s)

Gig(s) – at clubs, bars, restaurants, wherever

Preparation for an audition

Preparation for a trombone contest

Recording:

Songs for online

Albums

YouTube videos

Entrepreneurial Activity

Start concert series

Put on a house concert

Publishing

Transcription set

Journal article

Method Book

Etude Book

Juries The class will culminate in a performance jury with a panel including at least one guest jazz faculty member and teaching assistants. You will present the results of your semester project and prepare a short musical performance to demonstrate what you have learned.

Evaluation The student will be evaluated on the overall consistency of demonstrated effort throughout the semester, as evidenced by jazz trombone studio participation, the completion of weekly assignments and semester projects, and a successful jury performance.

Letter Grades will be calculated according to the following

A —demonstrates consistently superior effort throughout the semester as evidenced by achievement of weekly and semester goals. Student successfully prepared the transcription, tune list, etudes, and beyond! Student demonstrates a clear commitment to improving on the trombone. Student shows up for all studio classes

B —Demonstrates some effort throughout the semester as evidenced by achievement of some weekly and semester goals. Student mostly prepared the tune list, transcription, and etudes, but frequently was unprepared. Student could be learning more if they put a bit more effort into it!

C —Demonstrates little effort but at least shows up to all lessons and prepares a minimum of required material for the juries

D—Student misses many lessons and the jury performance is lacking

F—Student doesn't show up to juries or lessons

Honor Code Students will be bound by the University Honor Code. Academic dishonesty may result in a lower grade or a failing grade for the entire course.

Part I: Goal Brain-Storming

Goals are an essential element of both effective practice and motivation. They can facilitate improvement and give structure and meaning to life.

Step 1. Long-term goals

The first step is to establish long-term goals as clearly as possible to give yourself some general direction. These goals will evolve with time. You don't have to be sure now, but do your best to come up with some idea. Answer the following questions. Try not to overthink it. Write down whatever comes to mind without judgment.

1. What do I want to be doing in ten years, and how does jazz trombone fit into those goals?
2. What do I want to do professionally when I graduate from college, and how does jazz trombone fit into those goals?

Step 2: Intermediate and Short-term goals

Next, think about goals for your college career that will support your current long-term plans.

1. What do I want to accomplish on jazz trombone in my college years to support my long-term goals?
2. What do I want to accomplish on jazz trombone in the current term to support my intermediate and long-term goals?

Once you have thoroughly explored these questions, you and I can plan our work together. We will agree upon rewarding and realistic goals to be completed in the given term to develop your jazz trombone ability and earn your private lesson grade.

Part II: Agreeing Upon Goals for the Current Term

Step 1: Set musical performance goals. Have a project in mind to share with other people. Do not start with stand-alone technical goals. Technique serves musical expression.

Examples of concrete music performance goals:

Prepare for and perform a concert. Prepare for and take an audition. Make a recording or video. Write an article about jazz trombone to publish.

I recommend starting your own band with friends to feature your trombone playing and composing. Get involved beyond the college ensemble requirements. These outside projects are often the projects that are the most fulfilling.

Step 2: Set technical goals that support your performance goals. What skills do you need/want to reach your musical performance goals?

Examples: memorize music, reach a particular articulation speed, comfortably play a high note, achieve improvisational fluency with altered sounds on II-V's, etc.

Step 3: Establish a plan of action with a timeline for intermediate steps.

A student recital offers an example of this kind of project. The musical end products are the public recital and recordings.

1. Book recital (January)
2. Write music (January-March)
3. Form band (March)
4. Practice and Rehearse music (March-April)
5. Perform and record recital (Late April)
6. Edit recording (May)
7. Post online (End of May)

Don't wait for a required senior recital to start thinking in terms of music project cycles.

Part III: Effective Practice

Once you have set some goals, it's time to get to work!

Before you do, let's review some strategies for effective practice.

1. Draw from proven jazz trombone techniques.

What did/do great jazz trombonists do to make them so great? Teachers, colleagues, and your own research can help you find techniques proven to be effective.

2. Set goals to connect jazz trombone practice to something greater.

Above, I outlined steps for brainstorming goals creating a plan of action for achieving them. Having greater plans guiding you can give the seemingly mundane aspects of daily practice an added sense of meaning and purpose. This will motivate you to keep going when things are difficult.

3. Continuously challenge yourself in the practice room.

Practice time is a precious commodity. To see improvement, systematically practice things that you are not yet able to do. Once you get comfortable with something, move on to new material.

4. Train your attention.

Effective practice requires focused attention. Control of attention can be trained through mindfulness practice. This practice can help to lessen the impact of emotional disturbances on practice and performance.

Smart phones and computers are powerful practice tools. They are also big sources of distraction. The best way to promote focused attention is to disable connectivity functions if they are not needed for the task at hand. Try entering “airplane mode”, “do not disturb”, or disable computer wifi.

5. Prioritize and ritualize your practice.

Many things compete for your time and attention, but you only have a limited amount to go around. Once you have clarified your goals, prioritize your current projects and activities based on how well they help you reach those goals. Perhaps some projects are getting in the way of the things that are really important to you and can be let go. For substantial improvement in jazz trombone, daily practice should be a priority.

Following routines can seem like the antithesis of creativity, but daily routines are powerful tools to develop strong daily work habits of trombone practice, composition, writing, doing your homework, exercising, eating healthy, etc. Whatever it is, you can reinforce the behavior by plugging it into your regular schedule.

6. Foster a strong belief in your ability to improve.

Psychologist Carol Dweck distinguishes between two mindsets. People with a growth mindset believe in their own ability to affect positive changes in themselves. On the other hand, people with a fixed mindset believe their personal qualities to be “carved in stone.” Practicing outside of the comfort zone involves confronting playing issues and working through them in a feedback process of learning from successes and failures. If a person has a fixed mindset, facing playing issues and the prospect of failure can be frightening! I hypothesize that a growth mindset helps people find enjoyment of practice for its own sake. The process of practice can become its own reward.

Part IV: Creating a Daily Trombone Practice Routine

One of the most beneficial habits for trombonists is the development of a daily routine. I conceptualize of the routine as a time to develop and reinforce good technical habits on trombone. Targeted exercises refine all components of trombone playing.

A routine is not so much about daily repetition of set material as it is about structuring improvement through evolving daily practice. The general structure of the routine stays the same from day to day but the content changes to maintain a level of difficulty that challenges but does not overwhelm.

There are dizzying amounts of printed trombone routines and exercises. I believe the most beneficial routine for you is the one you design for yourself. Start cataloging the exercises and routines that professional players use and find the components that work for you. Many follow a sequence of exercises similar to this: Buzzing (optional), Long

Tones, Lip Slurs, Articulation, Upper register, Warm-down. Focus on attaining technical goals that support your musical project goals. The routine can include scale and arpeggio exercises developing comfort in all tonalities. Look for ways to keep things fresh and challenge yourself. Incorporate jazz harmonic concepts. Reserve a large proportion of your playing time to practicing musical material (as opposed to technical exercises). What's the point in practicing lip slurs, tonguing, and high notes if you're not going to apply those techniques to musical expression?

And most importantly... have fun!