EXPLORING THE PRIVATE MUSIC STUDIO: PROBLEMS FACED BY TEACHERS IN ATTEMPTING TO QUANTIFY THE SUCCESS OF TEACHING THEORY IN PRIVATE LESSONS THROUGH ONE METHOD AS OPPOSED TO ANOTHER

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I present strategies and methods for teaching fundamentals of music theory in the context of the private music studio through a variety of techniques and research. Beginning with a background in educational psychology, examples of behaviorist and cognitive teaching models are presented, and how each applies to teaching music is explained. Two detailed examples of actual lessons are presented, coupled with musical examples, to describe both the process and the concepts that can be presented. A qualitative experiment based upon the learning styles of three music students and the effect of different teaching styles when teaching the same concept is presented and discussed in detail.

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INTRODUCTION

Theory through Performance

Under the alias Monsieur Croche, Claude Debussy wrote these words concerning musical analysis: "In all compositions I endeavor to fathom the diverse impulses inspiring them and their inner life. Is not this much more interesting than the game of pulling them to pieces, like curious watches?"[1] Just as Debussy, I also endeavor to fathom the intentions of the composer, but through the aspect of performance along with analysis. By learning fundamentals of music theory through performance, students gain a deeper understanding of the music they are performing. Music theory can be used as a tool for aiding students in increasing the emotional delivery of their performance. The minds of students must be molded to think about music theory as an aspect of music itself rather than as a separate subject altogether. In order for this molding to take place, teachers should take into consideration research and teaching strategies already available and use these resources as a guide for developing their own teaching style as well as structuring lessons for each individual student.

Utilizing Educational Psychology

There are vast libraries of resources available in the field of educational psychology. Documented teaching experiments, research projects, and current studies in the field all contain valuable information that can be used to gain a starting point for each student as well as learn about the implications of actively reinforcing healthy playing habits. The degree of relevancy of educational psychology to music teaching is ultimately decided by individual teachers, but the relevancy to my studio teaching is pointed out and documented throughout this document. In regards to music theory, educational psychology also plays a key role. Teaching students to actively think of the theoretical aspects of a piece of music is an activity that should be

[1] Claude Debussy, *Monsieur Croche: The Dilettante Hater* (London: N. Douglas, 1927).

encouraged and reinforced by teachers so that students learn to incorporate music theory into all aspects of their playing. A strong goal for the purpose of teaching theory, however, should be determined so as to give students structured lessons.

Determining the Goal

The goal of teaching music theory is a particularly difficult topic because there are so many differing views concerning how it should be taught. Arnold Schoenberg wrote, "The evolution of no other art is so greatly encumbered by its teachers as is that of music. For no one guards his property more jealously than the one who knows that, strictly speaking, it does not belong to him."[2] Schoenberg, I feel, was issuing more of a caveat than an exhortation. Therefore for my own derivation of this goal, I turned to the authors of various theory textbooks, famous theorists and composers of the past, current theory teachers, and brass teachers of both the past and present. This goal or purpose of teaching music theory is not a static method, but rather a constantly evolving and changing entity so that I may best serve my students. I incorporate music theory in private lessons because it provides a common language for the basis of discussion. These discussions allow me to enhance students' strengths as well as provide means to work through areas in which students are not so strong. Ultimately, incorporating music theory into private lessons allows students to gain a deeper understanding of the music they are performing.

Performance

I believe there are two main ways of studying music: (1) Studying and performing the actual score and (2) Studying and performing exercises derived from the musical repertoire. For the purpose of discussion I have termed the first type as direct study and the second type as indirect study. Each method presents its own individual benefits for inciting discussions of

[2] Arnold Schoenberg, *Theory of Harmony*, translated by Roy E. Carter (Faber & Faber Ltd. 1978): 7.

music theory and both methods are beneficial for studying music. The decision of when to use one method as opposed to the other is left up to the teacher, but students' strengths should weigh heavily in the decision. Students' current levels of cognitive development as well as consideration of the research by Vygotsky concerning the Zone of Proximal Development should also be consulted, and can be found in Chapter Two.

The Responsibility of the Private Teacher

Through research and consultation of several quantitative studies conducted over the past two decades, it became evident that the role of private teachers in general and specifically when teaching music theory, carries long-term effects on music students who continue on to be involved in college music programs. Whether students major in music or are simply involved in ensembles or music electives, I feel that the responsibility of a private teacher is to equip students with the tools necessary to gain a deeper understanding of music, and in so doing fostering a life-long love of music.

The Problems

What began as mere curiosity evolved into a qualitative research experiment conducted with the cooperation of three students from my private studio. The purpose of my experiment was to determine a way to measure success in the teaching of music theory to private students. What I actually found is that attempting to quantify the success of different methods of teaching music theory presents many problems. The complete experimental findings and a detailed description can be found in Chapter V.

EDUCATIONAL PSYCHOLOGY

Behaviorist Teaching

A basic responsibility of the private music instructor is to promote in students healthy playing habits that lead to strong technique. Thus, it is essential to begin with a discussion of behaviorist teaching strategies since these strategies deal mostly with how teachers can condition students in order to get desired responses. It is the private music instructor's job to condition students in these basic concepts so that he or she may move on to deeper levels of musicianship, past the basics of technique. Behaviorist teaching offers a means to the end result of technically sound players through two different types of conditioning.

Classical Conditioning

The term most commonly associated with behavioral learning theories is conditioning. Conditioning is the psychological programming, so to speak, of an individual to establish a predictable behavior to a previously unrelated stimulus through the course of repetition. The field of educational psychology is completely permeated by behaviorist teachings dating as far back as Ivan Pavlov.

Russian physiologist, Ivan Pavlov (1849-1936) developed a theory of conditioned responses as an indirect result of his research dealing with the digestion of dogs. Pavlov's experiment was rather simple. He wished to measure the amount of saliva a dog produced when it smelled food. Pavlov would cause his dogs to salivate by allowing the animals to smell meat powder and then collect and measure the saliva. As his research progressed, however, Pavlov noticed that the dogs began to salivate before the meat powder was smelled. The dogs would begin to salivate upon seeing the lab technician bringing the meat powder and even from simply

hearing the lab technician's footsteps. The dogs had undergone what is now known as classical conditioning.[3]

To study classical conditioning Pavlov developed a model to reproduce the phenomenon that had occurred with his experiment dealing with his dogs. This particular model is a synthesis of several sources that can be found in Sternberg and Williams[4].

Pavlov's Paradigm for Studying Classical Conditioning[5]

1. Start with a stimulus that elicits a physiological or emotional response (or both). In Pavlov's experiment, this stimulus was meat powder. This stimulus is called the unconditioned stimulus, or US, because it elicits a response before any conditioning takes place. The response is produced automatically.[6]

2. Note your participant's automatic physiological or other response to the stimulus. This response is called the unconditioned response, or UR, because the response is the natural one of the organism, which occurs without any conditioning procedure. The unconditioned response of Pavlov's dogs was to salivate when the meat powder was on their tongues.[7]

3. Choose a stimulus that is originally neutral but that you wish later to elicit the desired response. This originally neutral stimulus is called the conditioned stimulus, or CS, because it is

[3] Sternberg, Robert J. and Wendy M. Williams Sternberg, *Educational Psychology* (Boston: Allyn and Bacon, 2002). 233-235.
[4] Ibid. 233
[5] Ibid. 234
[6] Ibid.
[7] Ibid.

the stimulus that will come to elicit the response after the conditioning procedure takes place. Pavlov chose the sound of a buzzer.[8]

4. Pair the CS and the US repeatedly, so the CS and the US become associated. Eventually, you will obtain from the CS a conditioned response, or CR, which is similar to the UR; it is elicited from the CS rather than from the US. Pavlov sounded the buzzer immediately before giving the dogs their meat powder. After a number of repetitions of this buzzer-meat powder pairing, the dogs' conditioned response was to salivate when the buzzer sounded, even though meat powder was not yet in their mouths.[9]

The knowledge of classical, or Pavlovian as it is sometimes called, conditioning has many benefits when teaching students of any kind. Brass teachers in particular are able to use this knowledge of conditioning in order to manipulate the aspects of playing that are strictly physiological, and for the most part involuntary. Many of the teaching approaches Arnold Jacobs[10] used with his students fall into the category of classical conditioning. In a lecture given at the 1995 International Brassfest, Jacobs had this to say about conditioned responses:

> One part of the brain will accept what you order as you go through a period of conditioning. In music, we would call this practice – conditioning studies, scales, intervals, drill forms, and so forth. We are actually creating a programming that goes in the brain where these things can be absorbed to become a conditioned reflex – a reflex that we are not born with, but it becomes a reflex simply by the fact that we have repetition.[11]

Because students are psychologically inclined to develop conditioned responses to their instruments, the role played by their private teacher should be viewed as important in their long-

[8] Ibid.
[9] Ibid.
[10] Former principle tuba of the Chicago Symphony Orchestra, and an extremely successful brass pedagogue. Go to <http://www.windsongpress.com /jacobs/AJ_Biography.htm> for a brief biography.
[11] Brian Frederiksen, ed., *Arnold Jacobs: Song and Wind*, ed. John Taylor, Fifth ed. (WindSong Press Limited, 2002). 143

term development. In a one-on-one setting, students' playing habits are much more easily corrected and reinforced by their private teacher than in a classroom setting. This does place, however, a great deal of responsibility upon the private teacher to be knowledgeable and observant of any type of classical conditioning in which the student is undergoing. Bad playing habits are just as easily conditioned as good playing habits.

All habits may be reinforced or discouraged in order to strengthen good playing habits as well as discourage bad playing habits. Once a conditioned response has been programmed so to speak altering this response is rather difficult. A system of rewards is often another type of conditioning known as operant or instrumental conditioning.

Operant Conditioning

The second type of conditioning is known as operant or instrumental conditioning. This type of learning involves altering behavior patterns by using rewards or punishment. Operant conditioning is much different than classical conditioning. In classical conditioning the role of the student is a passive one. In the example of Pavlov's dogs, the animals did not consciously cause themselves to salivate, and could not stop it even if they wished. In operant conditioning the role of the student is not passive but active. The student is presented with a situation and reacts to the situation. Based upon his or her reaction the student is either rewarded or punished. The main difference between the two then is whether the behavior is an involuntary response or a voluntary response.[12] "At some level, people have always known that organisms respond to rewards and punishments. Thus the discovery of operant conditioning was more identifying a phenomenon than it was an actual discovery."[13] The man who first documented this phenomenon scientifically was named Edward Lee Thorndike (1874-1949).

[12] Sternberg, 238.
[13] Ibid., 239.

Edward Lee Thorndike developed a method (1898, 1911) for inducing operant conditioning while studying cats. He placed a cat in a crate, which he had designed, with a door and a hidden latch on the inside of the crate to open the door. Thorndike then placed a piece of fish outside of the crate just out of the cat's reach. In every effort to escape the crate, the cat, by jumping around and clawing furiously, would eventually trip the release to open the door and get the fish. After some time had passed Thorndike would place the same cat in the same crate and recreate the scenario again. Thorndike noted that each time the cat was placed in the crate it would take less time to escape and get the fish. His conclusion was that over time the cat had learned to open the crate for the reward of food.[14]

In order to describe the learning process evident in his experiment with the cats, "Thorndike proposed a mechanism to account for operant conditioning, which he referred to as the law of effect, a law stating that those actions that are rewarded – "the effect" – will tend to be strengthened and will be more likely to occur in the future, whereas those actions that are punished will be weakened and thus will be less likely to occur in the future."[15] The implications of this are wonderful in training cats and other animals, but what about teaching music students? Jacobs addresses this same question in this manner, "The human brain is responsible for conditioned responses to stimuli or reflex responses to stimuli in everybody, musicians or non-musicians."[16] Jacobs found that humans respond as well to conditioning as any other organism. Because of this inclination to be conditioned it is necessary for teachers to understand that any repetitive action whether constructive or detrimental to the playing process will become a habit. Therefore it is imperative that teachers always take the time to strengthen good playing habits.

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[14] Ibid.
[15] Sternberg. 239
[16] M. Dee Stewart, ed., *Arnold Jacobs: The Legacy of a Master* (Northfield, Illinois: The Instrumentalist Publishing Company, 1987): 112.

Behaviorist Teaching in the Private Studio

There are many opportunities in a private studio setting for utilization of behaviorist teaching methods. Perhaps the greatest contribution of Arnold Jacobs was his thoughts about conditioning and conditioned responses when teaching music students. This quote is taken from a lecture given by Jacobs at the Second International Brass Congress held at Indiana University on June 4, 1984. Here are his words:

> I prefer that the young player is conditioned in the phenomena of sounds, phrases, emotions, and rhythms of music. I want him to be expert in music, not in trumpet, not in tuba. I want him to be expert in the sounds of the instruments. This little psychological twist is very important because so many of the people want to learn the instrument in order to play the music. I want them to learn the music and while they're learning the music, they're learning their instrument.[17]

I would extend Jacobs' idea of conditioning "in the phenomena of sounds, phrases, emotions, and rhythms of music" to include music theory. The conditioning of thought to incorporate music theory will give students with a basic knowledge of theory the ability to discern between parts of a phrase so as to increase the emotional delivery of a musical performance.

Behaviorist teaching models deal mainly with reflexes or involuntary responses to a stimulus. It is possible, however, to alter the learning experience through cognition either solely on the part of the student or by the teacher guiding the student through a series of cognitive steps to achieve the desired results. Since the main focus of this area is cognition it is simply called cognitive psychology.

Cognitive Psychology

Behaviorist teaching provides the private music instructor with strategies to condition students to create healthy playing habits. However, musicianship certainly does not stop there; instead musicianship merely begins with the skills that can be taught with behaviorist teaching

[17] Stewart. 132

methods. True musicianship grows out of healthy playing habits but cannot be learned through conditioning. This is where cognitive psychology comes in. Cognitive psychology, as the name implies, deals not with behavior but rather mental processes that are active when learning is taking place. Swiss biologist and psychologist Jean Piaget (1896-1980) offers insight into the mental processes of learners of all ages through his Stage Theory of Cognitive Development.

Piaget's Theory of Cognitive Development

Piaget's Stage Theory of Cognitive Development serves as a starting place for the instructor. By gaining insight into the learner's level of cognitive development, the instructor can more efficiently choose effective teaching strategies that will best serve the learner. Since the majority of private lesson students ranges from elementary to adulthood this section focuses on the concrete and formal operational stages put forth by Piaget.

Piaget's Stage Theory of Cognitive Development[18]

3. Concrete operational stage (Elementary and early adolescence). In this stage (characterized by seven types of conservation: number, length, liquid, mass, weight, area, volume), intelligence is demonstrated through logical and systematic manipulation of symbols related to concrete objects. Operational thinking develops (mental actions that are reversible). Egocentric thought diminishes.[19]

4. Formal operational stage (Adolescence and adulthood). In this stage, intelligence is demonstrated through the logical use of symbols related to abstract concepts. Early in the period

[18] W. Huitt & J. Hummel. (2003). Piaget's theory of cognitive development. *Educational Psychology Interactive*. Valdosta, GA: Valdosta State University. Retrieved May 1, 2006 from <http://chiron.valdosta.edu/whuitt/col/cogsys/piaget.html>.
[19] Ibid.

there is a return to egocentric thought. Only 35% of high school graduates in industrialized countries obtain formal operations; many people do not think formally during adulthood.[20]

As mentioned before, most private lesson students range in age from elementary to adulthood. Personally, I teach sixth graders through twelfth graders; therefore, most of my students fall into the concrete operational stage or are transitioning into the formal operational stage. Identifying the stage at which a student is operating helps me tailor my teaching style to that student's needs. These stages are merely a starting point. I have found that attempting to force every student into a set methodology is impossible. Even during the first lesson with a student it is evident what he or she responds to best.

Cautionary Statements Concerning Piaget

Private music teachers should also consider:

> Piaget's theory is the most nearly complete theory of cognitive development to date, although it is heavily oriented toward developing expertise in scientific modes of thinking. The theory offers fewer ideas about the development of expertise in other modes, for example, aesthetic modes as would apply in the arts. Piaget's theory has also been useful in generating a tremendous amount of research and in suggesting to teachers what children at given ages can and cannot do.[21]

For this reason I stress that Piaget's stage theory should be used more to gain a point of reference rather than as a definitive guide to categorizing each student. The authors note that Piaget's theory is completely devoid of aesthetic modes. There is a certain gray area in this regard when it comes to cognitive development, because until recently brain imaging was not possible. Further research still needs to be completed in the area of music learning in regards to Piaget's stages of cognitive development.

[20] Ibid.
[21] Sternberg. 50

Vygotsky's Theory of Cognitive Development

The second influential figure in the field of cognitive development is Lev Vygotsky (1896-1934). "In the theory of Lev Vygotsky, cognitive development is largely from the outside, inward. Vygotsky's major premise was that a person's intrapersonal, or internal processes have their roots in interactions with others."[22] Vygotsky's theory of cognitive development takes into account that human learning is influenced by the environment of which society is a part.

Vygotsky's theory was a bit more focused upon social interactions than was Piaget's. "Vygotsky formulated three particularly important ideas about cognitive development – the concepts of internalization, the zone of proximal development, and scaffolding".[23] Vygotsky's three-part theory is a valuable tool when planning lessons as well as when checking student understanding and comprehension. The perspective from the learner's standpoint is where Vygotsky begins.

Internalization

According to Vygotsky, learning begins when the learner takes in his or her outside environment, or internalizes. Sternberg and Williams define Internalization as, "the absorption, or taking in, of knowledge from the social contexts in which it is observed, so that one can use it for oneself (see Vygotsky, 1962, 1978)."[24] This concept can most closely be related to paraphrasing. Students are able to learn knowledge by reorganizing it into a way in which it makes sense to them. According to Arnold Jacobs, "The ability to learn is greater than the ability to teach."[25] This is in concurrence with Vygotsky. Jacobs also believed, "All good

[22] Ibid. 55
[23] Ibid. 56
[24] Ibid.
[25] Brian Frederiksen, ed., *Arnold Jacobs: Song and Wind*, ed. John Taylor, Fifth ed. (WindSong Press Limited, 2002): 91.

teaching is a simplifying process, a weeding out of what is unnecessary or distracting."[26] According to Vygotsky's concept of internalization that is exactly what learners do for themselves. Students reorganize information in such a way that they are able to make sense of it. This leaves the teacher with the responsibility of weeding out the unnecessary before the student ever receives the information. Not only do educators need to present information in an organized and efficient manner, but educators also bear the responsibility of presenting information that is challenging yet within the student's grasp, or Zone of Proximal Development.

The Zone of Proximal Development

Is there a limit to what a student can learn? To reiterate, Jacobs believed that there is a much higher capacity to learn than there is to teach, but there is a limit. Based upon a student's current level of knowledge there is a limit to the greatest possible complexity of knowledge that he or she will be able to understand. This is known as the student's Zone of Proximal Development.

"Vygotsky's second major contribution is an idea termed the zone of proximal development (also called the zone of potential development), or ZPD. The ZPD is the range between a child's level of independent performance and the level of performance a child can reach with expert guidance."[27] Vygotsky believed that learners were only able to grasp a concept of a certain complexity above their current level of understanding. I relate this to a magnetic field. A magnet emanates a field around itself in a spherical shape which attracts oppositely charged particles. This field only has a finite area. Therefore, if a particle is outside of the field and both the magnet and the particle are stationary there is no possible way for the magnet to attract the particle. However, if the magnetic field was somehow intensified to encompass a

[26] Ibid. 93
[27] Sternberg. 57

greater area the particle could be attracted. The ZPD is similar to this hypothetical magnetic field, and the student is the magnet. Referring back to the analogy of the magnet, there is a finite amount of intensity this particular magnet is able to handle. If the intensity reaches the maximum amount the magnet is able to handle, then no matter what happens particles outside of the maximum intensified area cannot be attracted. Just as the magnet, there is a point in which a student is simply not ready developmentally to comprehend a concept no matter how much guidance he or she receives.

It is often difficult for classroom teachers to provide each student with the expert guidance he or she requires. Some students require more or less guidance than others. The private studio then, like tutoring, is a place where the teacher is able to devote all expert guidance to the student. This is not to say, however, that the student should not also be independent during lessons. ZPD is merely a reference for the teacher to know:

1. What each student is capable of doing on his or her own.
2. What each student is capable of doing with expert guidance.
3. What each student is incapable of doing even with guidance.

In my own teaching I present challenges to students that I first give to them as an independent activity. If the student is struggling with his or her task I then offer my assistance in a way that guides the student to the solution rather than simply giving him or her the solution. During this time of guided learning if the student is still struggling and becoming more confused I move to the third and final idea Vygotsky presented in his theory of cognitive development, which couples well with the ZPD.

Scaffolding

Vygotsky's initial concept of scaffolding was similar to that of a construction site. If a height must be reached something is needed to stand on. Vygotsky proposed that teachers give students the tools necessary to construct a metaphorical scaffold for themselves within their own ZPD, and therefore reach the height needed to grasp the concept at hand. Recently, however, Vygotsky's concept of scaffolding has been extended to reflect the public education system and to offer strategies for success.[28]

Reuven Feuerstein[29] has extended Vygotsky's concept of scaffolding with this two-part theory. Feuerstein believes that students are taught in two ways. The first is known as direct instruction. "Direct instruction is the teaching situation in which a teacher, parent, or other authority imparts knowledge to a child by teaching it."[30] The second is known as a mediated learning experience. "A mediated learning experience (MLE) is a learning situation in which an adult or older child indirectly helps a child learn by explaining events in the environment, but without directly teaching some lesson."[31] According to Feuerstein, "Intelligence is not a static structure, but an open, dynamic system that can continue to develop throughout life!"[32]

Vygotsky and Piaget in the Private Music Studio

I employ Vygotsky's theory in conjunction with Piaget's stages of cognitive development when teaching students basic music theory concepts. It is necessary to meet the student where he or she is cognitively based upon Piaget's stages of development, but also be able to present

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[28] Ibid. 57-60

[29] Dr. Reuven Feuerstein, a clinical psychologist who studied at the University of Geneva under Jean Piaget, Andre Rey, Barbel Inhelder, and Marguerite Loosli Uster, went on to earn his Ph.D. in Developmental Psychology at the Sorbonne. He is currently the director of the Center for Development of Human Potential in Jerusalem. From 1970 until the present Dr. Feuerstein has served as Professor in the School of Education at Bar Ilan University in Ramat Gan, Israel; he is also the Director of the Hadassah-Wizo-Canada Research Institute, in Jerusalem, Israel.

[30] Sternberg. 57

[31] Ibid.

[32] Dee Dickinson, "New Horizons: Reuven Feuerstein," in *Creating the Future: Perspectives on Educational Change* 2002, < http://www.newhorizons.org/future/Creating_the_Future/crfut_feuerstein.html> (29, April 2006).

information within each student's ZPD utilizing the scaffolding approach suggested by Vygotsky. Perhaps the best example I can present is in the teaching of major scales to sixth graders.

Scales, in my opinion, are one of the most important fundamental concepts of functional tonality. Teaching sixth grade students all major scales as soon as possible is an excellent way to introduce students to all of the notes on their instrument, enharmonic tones, the order of sharps and flats, the circle of fifths and fourths, sequences, whole steps and half steps, and the relationship between tonic and dominant. Teaching scales, which can be an abstract concept, to sixth graders has its own challenges. In reference to Piaget's stages of cognitive development, most sixth graders fall into the concrete operational stage of learning. Because of this it is necessary to relate the abstract concept of a scale to a concrete concept which the student has already mastered, such as the alphabet.

In reference to Vygotsky's concept of ZPD it is necessary to ensure that the student possesses all of the skills needed to be able to succeed. In other words, if the student is having difficulty finding pitches on their instrument, it is obvious that scales would actually provide too much of a challenge for the student. That being said, however, if a student has mastered all of his or her scales it is obviously time to move onto a new, more challenging concept that is within his or her ZPD. Also in reference to Vygotsky, scaffolding plays a key role in student success. Rather than assigning the sixth grade student all twelve major scales at once, the teacher should pace his or her teaching so that each scale builds upon the previous.

The missing factor here is the repetition that is necessary to acquire both healthy playing habits and musicianship. This is where motivation plays a key role in the development of a musician.

Behavioral Psychology vs. Cognitive Psychology

Behavioral psychology, or behavioral theories of learning, focuses, "primarily on changes in observable behavior rather than on internal mental processes",[33] while cognitive psychology, as the quote inferred, primarily focuses on internal mental processes. During the first half of the twentieth century there was a definite division between these two categories. This division has gradually blurred to the point that now "today what were once two distinct approaches are now often combined."[34] As a teacher one should always be willing to try new methods for a student. There is a danger, in my opinion, in always attempting to force students into molds of one teaching method or another. This way of teaching can lead to resentment of both the teacher and the subject. Teaching itself is more of an art than an exact science. Methods that appeal to one will not necessarily appeal to another. Therefore, I believe that a successful teacher is one who offers as many approaches as it takes to help the student succeed.

The main focus, then, is how teachers may best motivate students to learn. It is up to the teacher to decide whether the student responds best to a synthesis of the cognitive and behavioral methods of teaching, or one approach over the other approach. "Motivation is an internal state that arouses, directs, and maintains behavior. Think of motivation as internal psychic energy or as a mental force that helps a person achieve a goal."[35]

Types of Motivation

Intrinsic motivation and extrinsic motivation are the two types of motivation. "Intrinsic motivation is the push students give themselves; extrinsic motivation is the push students get from pursuing external rewards or incentives."[36] Knowing which form of motivation to use

[33] Sternberg. 232
[34] Ibid.
[35] Ibid. 345
[36] Ibid. 347

when is where I personally run into difficulties, but my experience has shown that both forms are acceptable in the private studio. The example of Thorndike using food to entice his cats is a type of extrinsic motivation, but only if the cat is hungry, thus externally motivated to get the food. My hope is for all students to be intrinsically motivated to achieve their musical goals. In regards to education Yeats wrote this, "Education is not the filling of a pail, but the lighting of a fire."[37] If a metaphorical fire can be lit inside a student he or she will be intrinsically motivated to pursue his or her musical interests.

Further Resources

Thankfully many expert private teachers, such as Herbert L. Clarke, Arnold Jacobs, Edward Kleinhammer, and Philip Farkas have written about or allowed others to write about their success with students over many years of teaching. There are also organizations such as the International Tuba and Euphonium Association (formerly T.U.B.A.), the International Trumpet Guild, the International Trombone Association, the International Horn Society, and many others that promote the sharing of pedagogical material and the teaching of music worldwide. Many useful resources may be found at these respective associations' Websites.[38]

[37] William Butler Yeats (1865-1939)

[38] The International Tuba and Euphonium Association, http://www.iteaonline.org; the International Trumpet Guild, http://www.trumpetguild.com; the International Trombone Association, http://www.ita-web.org; the International Horn Society, http://www.hornsociety.org A wonderful resource for many different kinds of music teaching links and brass resources may be found here http://facstaff.unca.edu/dwilken/resources.html

THE GOAL OF MUSIC THEORY

What is the Purpose of Teaching Music Theory in the First Place?

Through the writings of many theorists, musicians, composers, and musicologists, I have come to realize that music theory should be taught as a process of observations about music rather than a set of rules that music is required to follow. In fact, I rarely use the word "rules" when addressing music theory with my students, but instead use the word "trends" to describe common aspects of theory. The purpose of teaching theory in the context of private lessons is two fold: (a) to give students a deeper understanding of the inner workings of the music and (b) to give those few students who will eventually go onto become music majors a strong background in the fundamentals of music theory.

Theory Textbook Authors' Thoughts about the Purpose of Music Theory

In my quest to discover the purpose of teaching music theory, I first browsed through several college-level music theory textbooks in an attempt to understand what the authors of these books felt was most important about their subject. These books were chosen simply because I am familiar with them due to the fact that each one was a required text at one time or another in my music studies. A common thread between all of the authors' prefaces quickly emerged. The summation of all prefaces holds that musicianship is the highest purpose for understanding music theory. Each author stated in not so many words that works are to be performed to gain a familiarity of the actual music, but then analyzed to understand the inner workings so as to enhance the next performance. Performance, after all, is what music is all about. The authors discussed in the following section stress the listening aspect of music heavily, and indicate that pieces should not simply be read, but read, heard, and performed.

Elementary Harmony: Theory and Practice
by Robert Ottman

In regards to the information presented in his textbook, Ottman states, "In addition to the usual presentation of this subject matter through the study of chord constructions, chord successions, harmonic analysis, and part-writing, this text also emphasizes the study of melody, including melodic constructions (form) and the characteristic elements of successful melodic writing. [The] application of this knowledge is continually applied to the analysis of the implications of harmony in a melodic line and to the harmonization of given melodic lines."[39]

Ottman believed that in order to construct a successful melody a basic understanding of voice leading and part-writing was necessary. Because of that, a great deal of the information presented in this text is gathered from the study of eighteenth-century counterpoint and the chorale harmonizations of J. S. Bach.

Tonal Harmony: With an Introduction to Twentieth-Century Music
by Stefan Kostka and Dorothy Payne

This text emphasizes and capitalizes upon the fac that college music majors are required to perform in different ensembles, recitals, etc. According to the authors, "Actual musical practice is emphasized more than rules or prohibitions."[40] When perusing the book, this becomes evident in the sheer amount of musical examples. The book is laid out to follow a practical evolution of music through each musical period. "Abundant musical illustrations... serve as a spring board for class discussion and individual understanding."[41] Performance of the examples is also stressed so as to understand the music on all levels.

[39]Robert Ottman, *Elementary Harmony, Theory and Practice*, 5th ed. (Upper Saddle River, NJ: Prentice Hall, Inc., 1998): ix.
[40]Stefan Kostka and Dorothy Payne, *Tonal Harmony, with an Introduction to Twentieth-Century Music,* 4th ed. (Boston: McGrawHill Companies, Inc., 2000): vii.
[41] Ibid.

Perhaps the greatest point proposed in the preface is that "... [students] should remember that musical lines (vocal or instrumental) produce the harmony, not the reverse."[42] This is important when teaching fundamental theory concepts in the context of a private music studio. Unless the student is taking lessons in piano, guitar, or other chord producing instruments, then all harmony must be taught as an implication of the melodic line. Presenting students with transcriptions of J. S. Bach's *Unaccompanied Cello Suites* is one of the best methods I have found to discuss implied harmony from a melodic line. Becoming familiar with this style of composition allows students to have some experience in listening to harmony when it is implied rather than played.

Analysis of Tonal Music: A Schenkerian Approach
by Allen Cadwallader and David Gagné

Because this book is Schenkerian in nature the authors base much of their organization and explanations upon the teachings of Heinrich Schenker, and those of Schenker's students. According to Gagné/Cadwallader, "Schenker always valued performance and practical musicianship…"[43] therefore, "[Schenkerian analysis] is grounded in the fundamental principles of harmony and counterpoint, and requires solid musicianship and a developed musical ear."[44] According to these authors, performing the examples is of the utmost importance in gaining understanding of the compositions being studied. The study of music and the practice of theory should coincide with one another so as to create a total sense of involvement in the music. Treating music and theory as equals allows students to see the music to come alive through performance, and allows them to gain understanding through analysis.

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[42] Ibid. xi
[43] Allen Cadwallader and David Gagné, Analysis of Tonal Music, a Schenkerian Approach (NewYork: Oxford University Press, 1998): 4.

Music, after all, is a performing medium. It does no good to analyze a piece of music with no intention of creating any kind of conclusion. The authors assure the reader, "...you will learn how to evaluate a musical context based on your hearing and perception of all aspects of that context."[45] In general, however, students' knowledge of musical styles and genres as well as their familiarity with music literature is nowhere near that of the teacher. Gagné/Cadwallader offer a way for students to understand music based upon common trends pointed out through a process of observation and reflection while being totally immersed in the music itself.

Introduction to Post Tonal Theory by Joseph N. Straus

Due to the nature of Post-Tonal music, I was rather surprised to find that much of what the author presents in the preface of his text is similar to that of the other authors. In keeping with the musicianship thread, Straus states, "The analyses take a direct, hands-on approach to the works, encouraging students to play them, sing them, and experience them in an immediate way. They are designed to make the theoretical concepts musically palpable."[46]

I find the word "palpable" in this quote rather curious. Palpable, simply put, can be defined as touchable. Straus feels that in order for the music to be touchable, students must know the works inside as well as out. In other words, performance of the works should take precedence over all other methods of study. Learning a work for the purpose of performance gives musicians an intimate relationship with the work, and therefore allows for much better insight into the relationship between the music and the theory.

Theory as an Activity

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[44] Ibid. 3
[45] Ibid. 4

As previously mentioned, I believe music theory is a process of observation rather than a set of rules. By process of observation, I mean that theory is more of a common language used to discuss music rather than a definitive law that governs music. My own decision on this matter was developed after reading many writings of other theory teachers, composers, and theorists. One particularly good source that presents an overview of many different methods of teaching rather than one strict way of teaching is by Michael Rogers.[47] In his text Rogers attempts to define theory, but rather than stating what theory is, he presents the reader what he feels theory is not. Rogers states, "[There is a misconception] that theory consists primarily of a body of factual information to be learned or memorized."[48] Music theory is so much more than "a body of factual information" as Rogers termed it. It seems, however, that the common understanding of music theory is just that. Consider this definition from Grove Music Online:

> Theory is now understood as principally the study of the structure of music. This can be divided into melody, rhythm, counterpoint, harmony and form, but these elements are difficult to distinguish from each other and to separate from their contexts. At a more fundamental level theory includes considerations of tonal systems, scales, tuning, intervals, consonance, dissonance, durational proportions and the acoustics of pitch systems. A body of theory exists also about other aspects of music, such as composition, performance, orchestration, ornamentation, improvisation and electronic sound production.[49]

I concur with Rogers in that the actual structure of the music is different than the theory behind the music. It seems to me that the components of theory used and described in performing an analysis of music are often confused with the study of music and music theory. One of the many benefits of learning theory is for the purpose of analysis. Consider this definition of analysis from Grove Music Online:

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[46] Joseph N. Straus, *Introduction to Post-Tonal Theory,* 2nd ed. (Upper Saddle River, NJ: Prentice Hall, 2000): vii.
[47] Emeritus Kenneth and Bernadine Russell Endowed Professor of Music Theory at the University of Oklahoma. Rogers was also a past editor of the *Journal of Music Theory Pedagogy*.
[48] Michael R. Rogers, Teaching Approaches in Music Theory: An Overview of Pedagogical Philosophies, 1st ed. (Carbondale, IL: Southern Illinois University Press, 1984): 4.

> A general definition of the term as implied in common parlance might be: that part of the study of music that takes as its starting-point the music itself, rather than external factors. More formally, analysis may be said to include the interpretation of structures in music, together with their resolution into relatively simpler constituent elements, and the investigation of the relevant functions of those elements.[50]

This is a much better definition of theory as well, because it describes theory and analysis as a common parlance or language. This definition also points to the interpretation of structures rather than the definition of structures, and how these interpreted structures interact with one another.

According to Rogers, theory is an activity rather than a subject. He writes, "Music theory, in my opinion, is not a subject like pharmacy with labels to learn and prescriptions to fill, but an activity – more like composition or performance."[51] Holding that theory is an activity rather than a subject, a teacher should ask himself or herself whether presenting any concept during the private lesson will enhance the overall performance. Teaching students to critically analyze music through performance rather than analysis as a separate act away from performance allows for a much smoother transition to more difficult theory concepts that cannot always be presented in an implicit manner. Consider this example concerning key signatures:

> It occurs to me that we often teach key signatures "backside-to-the-front." The key signatures are neatly printed out before us – in a composition, or on a page in a theory book that explains the concept of key. The teacher's introduction usually is something like this: "Look at the last sharp on the right of the group of sharps…" "Look at the next-to-the-last flat..." And so it goes. The explanations lack depth because they do not help students realize that what is printed on the page to identify key is the result of an ever-changing melodic pattern. No matter what key or pitch we start with, if we use the same pattern of intervals, the resulting scale sound will be the same – the principle of transposition. The tonality of the piece and the printed signature result from the scale or mode the composer has used during composition.[52]

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[49] Claude V. Palisca: "Theory, theorists," Grove Music Online, ed. L. Macy (Accessed June 3, 2006), http://www.grovemusic.com

[50] Ian D. Bent and Anthony Pople: "Analysis," Grove Music Online, ed. L. Macy (Accessed June 3, 2006), http://www.grovemusic.com

[51] Rogers. 7

[52] Ann Cogswell, "Key Signatures: Do We Teach Them 'Backside-to-the-Front'?" *American Music Teacher* 52, (Dec 2002-Jan 2003): 39.

According to this quote from Ann Cogswell it is evident in this instance that most students are taught the solution rather than the process. For determining a key based upon the key signature, the process, being the unchanging pattern of intervals, is always the same, but the solution, being the number of sharps or flats, changes with each key. By teaching the process or larger concept and then guiding students toward discovering the more specific aspects they become more inclined to analyze these occurrences on their own. Teaching students to train their minds to analyze is much more beneficial than teaching them the shortcut to the solution, because they are much more likely to relate knowledge learned in the lessons to material presented in a theory class. After the process or concept is understood then the shortcut to the solution can be taught. This activity of "theorizing," as Rogers so brilliantly writes, involves much more than simply identifying the key, adding Roman Numerals under every chord, marking phrases, and identifying cadences.

The Relationship between Music and Thought

For the private teacher, especially wind teachers, the main goal of teaching music theory should be to teach students how to actively listen. Edwin E. Gordon[53] describes this phenomenon as a term he coined known as *audiation*.

> Audiation is to music what thought is to language. Consider language, speech, and thought. Language is the result of the need to communicate. Speech is the way we communicate. Thought is what we communicate. Music, performance, and audiation have parallel meanings. Music is the result of the need to communicate. Performance is how this communication takes place. Audiation is what is communicated. Imitation, memory, and recognition are part of the audiation process. Alone, however, they are not

[53] Edwin E.Gordon is a leading figure in music education research. He is perhaps the most researched and his methods have been proven to have a powerful impact on music students. The University of North Texas currently uses a music aptitude test developed by Dr. Gordon for incoming undergraduate music majors. Additional biographical information about Dr. Gordon may be found here: http://www.giml.org/frames.html

> audiation. Audiation takes place when we hear and understand in our minds music that we have just heard performed or have heard performed some time in the past. When we merely recognize or imitate what we have heard, or memorize what we intend to perform, we live in the past. In audiation, the past lives in us.[54]

Presented by Gordon is a direct link to the theories proposed by Piaget and Vygotsky when dealing with the relationship between language and thought. "Prominent psychologists like Jean Piaget and Lev Vygotsky long ago established a link between language and thought."[55] Through the study of the stages of language acquisition and how language is defined it becomes evident that music and language are related in more ways than one. "Both (spoken) language and music are generated from a finite set of sounds (notes or phonemes), carved out of a larger possible set of sounds. These sounds are organized into discrete categories, facilitating representation and memory."[56] The implications of the relationship between language and music are huge when it comes to teaching music theory through private lessons.

The Relationship between Music and Language

Music itself is an abstract medium, meaning that you may only experience music rather than touch it. Language may also be defined in a similar way. A language is actually a contextual organization of sounds that convey a message to a listener for the means of communication. "Unlike other universal domains of human expertise such as vision or social organization, both music and language (included signed languages) are organized temporally, with the relevant structures unfolding in time. Furthermore, spoken languages, like music, reach our perceptual system as frequency spectra, arrayed as pitches."[57] Consider the similarities between music and language. Sternberg and Williams put forth these five characteristics of a

[54]Edwin E. Gordon, "All About Audiation and Music Aptitudes," Music Educators Journal 86, no.2, .42.
[55] Susan B. Neuman, "Word by Word," Scholastic Parent & Child 13, no.3 (2005), 43.

language: communication, arbitrariness, meaningful structure, multiplicity of structure, and productivity. This discussion merits a more detailed look specifically at communication and arbitrariness and their relationship with music as a language.

Communication

According to Sternberg and Williams, "Language provides a means for one individual to understand the thoughts of another."[58] Communication, then, occurs when two or more individuals complete the circuit of speech and understanding.[59] In music this occurs when the performer conveys a musical message to the listener, thus completing the circuit of speech and understanding.

Composers' emotions and musical messages are conveyed through the music they create and if performed well, are heard and processed by the listener. A listener who has a mature understanding of the musical language will understand better than a listener who does not. A musician who possesses a mature understanding of the musical language will convey a message better than a musician who does not.

Another component of this, however, is interpretation. Consider the following quote by Rich Matteson:[60]

> You people grant immortality to composers. Bach is not dead, Beethoven's not dead, Mozart's not dead, Duke isn't dead. The body's gone, but what they gave to the world on paper – that made the world richer than it was before. They gave the world all of this beautiful music and they put it on paper, and because it's on paper it's just a graph; it doesn't mean anything until you come along and with the breath of your body you take that musical instrument and you read that music and you change it to sound. And the

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[56]Erin McMullen and Jenny R. Saffran, "Music and Language: A Developmental Comparison," *Music Perception* 21, no. 3 (2004): 291.
[57] Ibid.289-290.
[58] Sternberg, 66.
[59] Ferdinand de Saussure, Charles Balley, Albert Sechehaye, and Albert Kiedlinger, eds. Translated by Roy Harris, *Course in General Linguistics* (LaSalle, IL: Open Court, 1995): 1113.
[60] Former UNT euphonium and jazz improvisation instructor. See http://www.richmatteson.com for a biography.

> minute you change it to sound, Bach is not dead. Neither is Beethoven. Their music is being heard and what they represent to the world, because of your gift.[61]

As Matteson puts forth, music communicates with the listener and broadens the circuit of communication by involving the composer, in a way, as the speaker, thus granting Bach, Beethoven, Mozart, DukeEllington, and other composers immortality.

By teaching music as a form of communicating to an audience it is almost impossible not to lead to some sort of theory discussion. Just like a speech, music contains inflection, dramatic pauses, tone of voice, etc. Teaching students the art of musical phrasing based upon cadential figures, voice leading, and resolutions will give students a much deeper understanding of music in general and not just the specific piece they are playing at the time. By teaching concepts rather than definitions, students will be able to carry knowledge over from one composition to another, and be able to further develop their abilities.

The idea of learning for depth and complexity as introduced here is elaborated on by Wiggins and McTighe, who explain the differences between surface knowledge and deeper understanding. They conclude that knowledge encompasses the facts, verifiable claims, and right or wrong; while understanding encompasses the meaning of the facts, the theory that provides coherence and meaning to those facts, and fallible theories.[62] When students have a deep understanding of the theory behind the music, they are able to communicate their musical message much more effectively.

Arbitrariness

"With few exceptions, the relation between a word and what it refers to is arbitrary."[63]

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[61] Rich Matteson, "Music is a Gift." *Tuba-Euphonium Legacy Project: Vol. I Rich Matteson*. Mark Custom Recording Service Inc., 2003. CD.

Sternberg and Williams point out that the word is arbitrary, but that the message it conveys is not. Saussure analyzes this further: "A linguistic sign is not a link between a thing and a name, but between a concept and a sound pattern."[64] Matteson seems to concur with Saussure on this point. Referring back to the Matteson quote, "[Composers] gave the world all of this beautiful music and they put it on paper, and because it's on paper it's just a graph; it doesn't mean anything until you come along and with the breath of your body you… read that music and you change it to sound."[65]

In summation, the graph or sheet music is a compilation of symbols which once interpreted by the musician becomes a message conveyed to the listeners of the music. Without being able to interpret the graph, the graph is meaningless. For this reason, the ability to read and interpret sheet music should be stressed at the earliest stage of learning. And also for this reason, I believe that fundamentals of music theory should be incorporated into the private lesson curriculum. A strong foundation in music theory provides students the insight needed to adequately interpret and convey composers' musical messages to audiences.

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[62]GrantWiggins and Jay McTighe, *Understanding by Design: Expanded 2nd Edition*. (Alexandria, VA: Association for Supervision and Curriculum Development, 2005): 38.
[63]Sternberg. 66.
[64]Saussure. 66.
[65]Matteson.

THEORY IN THE PRIVATE STUDIO

Two Methods of Approach

I believe there are two main categories that music can be studied in private lessons. The first is the study of musical repertoire, which includes orchestral and band excerpts, etudes, vocalises, solo literature, etc. Because the actual score or piece of music is the basis of study I have termed this method as direct study. The second category includes the study of method books, scale studies, flow studies, exercises derived from excerpts of musical repertoire, etc. I refer to this method as indirect study. Incorporating each of these two methods deepens understanding of music through performance. Therefore both methods should be viewed as opportunities for teaching fundamentals of music theory through music. The two examples given are related in that the indirect example is derived from the direct example.

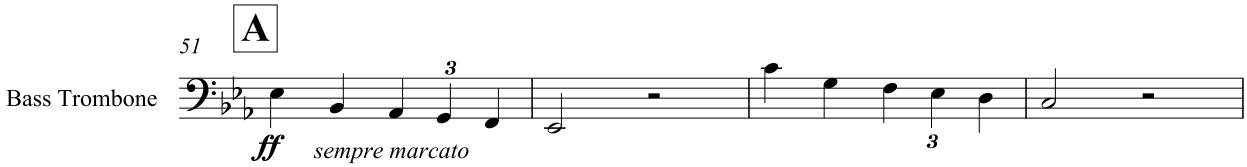
Direct Study Method

As a musician it is necessary to be familiar with a wide range of music literature in order to become as marketable as possible. By utilizing this method of studying music, students are able to gain a wide array of musical knowledge by being exposed to many types of literature spanning several centuries of music history. I feel it is the responsibility of the private teacher to present students with excerpts from the standard orchestral and repertoire, solo literature for their specific instruments, and etudes and vocalizes written or adapted for their specific instruments so that his or her students have the opportunity to become familiar with the material contained in the vast libraries of performance literature for their specific instrument. Here is an example I use to incite discussions of several topics of basic music theory.

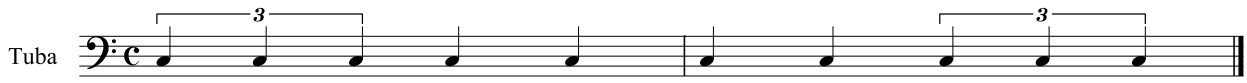
Bruckner Example

This example is taken from an excerpt that I use to teach my students basic theoretical concepts, and to reinforce their concept of sound. There are multiple ways that this method could be implemented for the purpose of teaching basic theory concepts. This example is simply one selection of many that I use with my students. I have only included the part of this excerpt that I draw upon to strengthen the theory background of my students, but in the lessons students are asked to learn the entire excerpt.

This example works well for high school tuba, euphonium, and trombone students because the range is not at all challenging for them so no transposition is necessary. It is an excerpt of the first four measures of rehearsal letter A, mm. 51-54, from the first movement of Anton Bruckner's 4th Symphony.



A brief analysis of this excerpt will show the reader that each motive is a descending triad with two passing tones between the fifth and the root. The famous "Bruckner rhythm" of 3 + 2, or 2 + 3 in this case, is also exhibited, and can be seen here:



Always take the opportunity to point out to students interesting occurrences such as the "Bruckner rhythm" so that they learn to appreciate music history and the importance that the subject has to learning and performing music.

The key of this symphony, as also stated in the title, is E-flat. So, then the first triad, mm. 51-52, is a I chord, while the second, mm. 53-54, is a vi chord. Immediately a relationship

between the major key of E-flat to its relative minor of C minor can be seen. This relationship between tonic and sub-mediant plays an important role in the basic understanding of functional tonality. Pointing this relationship out too quickly, however, would not be a good idea. Students must first understand the basic relationship between major scales and their relative minor scales. Students must be able to hear the triads outlined by the melodic motive, and understand why the first is major and the second is minor. In short, scaffolding must occur.

For example, a teacher might consider inciting a discussion about the different sound qualities of each triad. In a recent interaction with one of my students I asked the student to describe, in his own terms, the difference in the sound of the major triad and the minor triad. His response was that the major triad sounded bright and happy while the minor triad sounded dark and gloomy. This allowed me to help the student discover that the difference between a major triad and a minor triad is the quality of the third of that triad. By using the student's own descriptors I was able to increase his understanding of the difference in chord quality, which allowed me to then move towards major key and relative minor key relationship.

Guide Students through Discussion

The theoretical implications of the relationship between the two parts of the Bruckner example are basic, yet important to understand so that the relationship between the two chords may be established. When looking note by note it becomes evident that the string of notes is a descending pattern. This may seem trivial, but allowing students to describe even seemingly obvious details builds their confidence and encourages them to think in an analytical way. When dealing with the intervals of the two motives there is a slight variation that occurs at the fourth note of the motive. This is no great surprise seeing as how the first is a major triad which is signified by a major third between the root and third, and the second is a minor triad which is

signified by a minor third between the root and third. Again, though, guiding students through a discussion in this manner allows them to become comfortable with the idea of discussing all aspects of the music they are reading. Start with pointing out the general and then guide the discussion to the not so obvious. This allows students to build upon what they already know.

The Relationship between Tonic and Dominant

Perhaps the most obvious relationship concerning each triad individually is the motion Do-Sol-Do in both major and minor triads when calling the root of each chord Do. Most students are able to hear the sense of finality that is created by landing firmly on the E-flat or the C at the end of the motives. Few students are able to tell me why that sense of finality is created. This allows me to discuss with students the relationship between tonic and dominant. My tuba students generally pick up on this more quickly than my euphonium or trombone students, simply because tubas generally play the roots of the chords in I-V-I motions. All students, with some discussion, are able to understand this relationship, and in doing so gain a basic understanding of the meaning of cadence. Once students have this basic understanding of cadence I frequently ask them to point out cadences in other pieces of music. This allows me to discuss with the students the different types of resolutions and cadences, and allows the students to learn a great deal more than just how to play the notes.

By knowing where the tension is created in the music, and how to resolve that tension students are able to practice delivering much more emotional performances. The first time a student plays this Bruckner excerpt I usually hear two quarter notes, a triplet, and a half note with very little, if any, dynamic contrast or shape to the phrase. When students understand that there is a certain place the music is moving toward they are able to play the phrase with much more sensitivity to musicianship. By discussing these aspects of music students learn that

everything they play is important and is able to be played with emotion. This idea of phrasing brings me to my next point.

Knowing and Understanding

In regards to scale members, the descending pattern becomes: 8, 5, 4, 3, 2, 1 in both cases. This similarity is where I as a teacher take the opportunity to guide a student into discovering the relationship between the two motives, as well as the larger concept that is implied – the relationship between a major key and its relative minor key.

Before jumping to point out the theoretical concept, however, it is absolutely necessary to ensure that the student is ready to take that step. Referring back to Vygotsky and the ZPD would benefit teachers greatly. Students must be guided through any foreign concepts; it is essential that teachers make use of scaffolding when presenting new material. A concept must be within the student's ZPD or he/she will not be able to grasp the concept even with expert guidance. The following checkpoints can be used to determine if the student is ready to move to a discussion concerning key relationships:

1. The student must be able to play the E-flat major scale and be able to recognize the key of E-flat major upon sight.

Knowing the scale is very different from understanding the concept of tonal center, but by starting with the scale students are able to draw upon their prior knowledge. Play the scale with the student and encourage him or her to draw out the natural musical elements of the scale. A trick I often use to help students understand tonal area is by playing a scale up to the leading tone and stopping. I then pause for a moment and watch the expression of discomfort on the student's face. I then ask the student to sing the last note if he/she has not done so already. This

approach usually yields for intriguing discussion about the natural pull of the leading tone to the tonic.

2. The student must have an understanding of the patterns in an E-flat major scale, and thus all major scales. In other words, the student must be able to hear each note as it progresses to the next note in the scale and be conscious of every interval of a major scale.

The best way I have found to check understanding of this is by having the student play an E-flat on their instrument, and then sing the names of the notes of the scale on pitch while fingering the notes on their instrument. Next, specifically for brass players, repeat the process, but have the student buzz on his or her mouthpiece rather than sing. Singing and buzzing on the mouthpiece are both important aspects in developing a concept of sound, meaning that a student must develop a conceptual understanding of the characteristic sound of his or her instrument before successfully being able to create the desired sound.

An extension of learning the scale by singing note names is learning to sing the scale using solfedge. Learning solfedge opens many doors to brass students. Just as valuable a skill as hearing diatonic steps of scales, is being able to hear and reproduce intervals by singing, buzzing, and playing. Learning solfedge allows students to add "words" to the notes. For example, when asked to sing a perfect fifth from a given note, a student might struggle with the proposed task, because singing is at first, for most, a rather foreign concept. However, if this same student is played a perfect fifth, and then asked to sing Do and Sol there is an association made between the sound and the syllable. Time spent practicing the relationship and resulting sound of Do and Sol will yield two things: (1) The student will gain confidence in singing the interval of a perfect fifth and (2) The student will associate the sound of a perfect fifth as the movement from Do to

Sol. Each diatonic interval may be learned in this way. This basic skill becomes extremely important in being able to recognize intervals as well as harmonic movement but ultimately strengthens the student's skill of audiation. With a highly developed ability to hear sounds in their brains, and imitate these sounds through their respective instruments, students are able to form a mental concept of exactly how their individual instrument is supposed to sound. In short the students develop their own concept of sound.

Concept of Sound

It is important that students build a strong correspondence between the sound of each note and how they want the note to sound when played on their instrument. The progression of sound creation on a brass instrument is:

1. Hear the sound in the brain
2. Sing the sound in the brain
3. Buzz the sound you hear

A concept of the sound intended to be heard is absolutely necessary when playing an instrument. Anything that strengthens aural skills and audiation in general will be well spent on the part of the student as well as the teacher. To illustrate this point, I use Arnold Jacobs as an example. Arnold Jacobs[66] was once asked what he thought about when he played. His response was this:

> I sing in my head what has to go out of the horn. It is like the relationship between a player-piano roll and the keyboard. I am always on the player-piano roll, and never at the keyboard. I don't care how the lip feels – I don't care how I feel. The psycho-motor aspect of playing is a message from one part of the brain that is fed to the lip through the seventh cranial nerve. It goes through a computer activity that you have in the brain, but you are always conceiving the message, just as though you had vocal chords, but had them in the lips. So my whole concentration is not on what I feel like or what I sound like, but what I want the audience to hear. It's like telling a story, but instead of words you tell it with concepts of sound.[67]

[66] See <http://www.windsongpress.com/jacobs/AJ_Biography.htm>
[67] Brian Frederiksen, ed., *Arnold Jacobs: Song and Wind*, ed. John Taylor, Fifth ed. (WindSong Press Limited, 2002). 138

Jacobs had a firm grasp on delivering a message to his audience. I frequently play recordings of his work with the Chicago Symphony and his personal practice sessions for my tuba students to help them develop a concept of tuba sound. I can think of no better example of tuba sound than the sound of Arnold Jacobs. All students regardless of their individual instruments benefit from listening to Jacobs play. His phrasing and melodic interpretation are incredibly sensitive to the character of the music being played. One of the ways that character is most obviously portrayed in music is through the color given to music by the key in which it is written or its tonal center which leads to the relationship between major and minor scales.

The Relationship between Relative Major and Minor Scales

Finally, the relationship between a major scale and its relative minor is a foreign concept to most students. The students I have encountered are not asked to learn minor scales, and because of this are uncomfortable with playing in minor keys. I use this process to help students in understanding this important relationship:

1. Ask the student to sing three descending diatonic steps beginning on E-flat and ending and sustaining on C.

Take the opportunity to strengthen aural skills every time it presents itself. There is, quite possibly, no other skill more beneficial to a wind player than audiation. Allow this first step to take as much time as necessary to ensure the student is able to hear the interval between the tonic and the sub-mediant.

2. Go through the same process of singing and buzzing as stated above in regards to the E-flat scale to learn the C natural minor scale.

Do not tell the student at this point, however, that he or she is learning a different scale. Simply ask him or her to sing and buzz the E-flat scale only this time starting and ending on C instead of E-flat. In my experience, buzzing on the mouthpiece is uncomfortable for most students I encounter. Buzzing, in my opinion, should be an equally, if not more, comfortable activity than playing, and it also is essential in developing a concept of sound. What students must understand is that buzzing is the actual creation of sound while the instrument simply amplifies the sound being created. If the initial sound is not of the highest quality, then the amplified sound is even worse.

3. Discuss with the student the differences that he or she heard in the sounds of the two scales. This discussion almost always gravitates toward the contrast between the bright, happy quality of a major scale and the dark, gloomy quality of the minor scale. As long as students are able to recognize the difference and communicate what they mean, the specific descriptors are unimportant. Use their descriptors in discussing the different sounds to show students that you value what they have to say.

4. Once the student is able to recognize the difference between major and minor scales, I lead him or her through a discussion of major and minor scales, based upon the discussion of the difference of sound between the E-flat major scale and the C natural minor scale.

The relationship between the sub-mediant and the tonic is a concept that deserves a great deal of aural recognition training. Ask students to close their eyes and then play for them different examples of major and minor scales and melodies. Ask students to identify each example as a major or minor based purely upon sound. This particular exercise is a weekly

routine with all of my high school students. I often use excerpts from their current musical literature, songs that are popular on the radio, standard jazz tunes, and popular orchestral excerpts for this activity so as to add diversity and promote a well-rounded musical awareness.

5. Based upon the discussion of the difference of sound between the E-flat major scale and the C natural minor scale discuss the differences between mm. 51-52 and mm. 53-54 of the example given above.

This type of discussion of sound opens the door for many different opportunities. The first of these opportunities should be to ask the student to learn all three forms of each minor scale in the same way the C natural minor scale was just learned. Simply point out to the student the differences in the harmonic and melodic minor scales in relation to the C natural minor scale. Once the theoretical basis is understood and comprehended, students will have much more success in learning the scales than they would have by simply attempting to memorize the scales. Complex concepts of music theory are elaborations upon basic concepts. Because of the comprehensive nature of music theory it is pertinent that students fully understand the fundamental concepts before moving to more complex concepts.

This direct study approach allows students to gain a background in music history and period performance technique as well as allowing me as a teacher to point out the natural progression of music theory through the literature studied. As previously stated, this is but one example of many that I use to incorporate all aspects of music theory, music literature, music history, and music performance in the private studio. This however, is direct teaching and it is essential to balance direct teaching with indirect teaching.

Indirect Method of Study

Incorporating this method of study into private lessons may be done in many ways. The simplest way is by utilizing flow studies written by Vincent Chicowicz, Arnold Jacobs, and Emory Remington, etc. to aid students in developing a characteristic tone on their respective instruments. The advantage of using flow studies is that they allow the student to focus only on his or her tone and breathing. However, there is a disadvantage to this simplistic approach in that students sometimes become bored. If students do not understand the objective of the exercise they feel as if they are not being challenged.

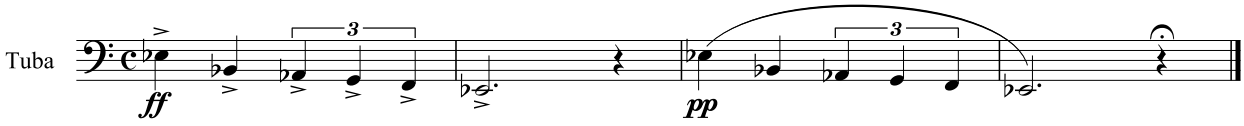
The scale studies designed by Herbert L. Clarke, J.B. Arban, and many others offer a more challenging way for students to develop a fluency in all keys. In this method students progress through a sequence of successively more challenging exercises. As a side note, this meshes well with Vygotsky's concept of ZPD. Keeping students challenged often serves as a motivator. On the other hand these exercises are sometimes too challenging and students can become easily frustrated in lessons and in their private practice time.

Finally, a culmination of the previous two ways is to adapt sections of difficult excerpts, etudes, solos, vocalises, etc. to create exercises for students for the purpose of using knowledge gained of tone and key fluency. This method is a valuable tool in strengthening students' aural skills, knowledge of scales, and allowing students to become familiar with the melodies used to create the exercises. For the purpose of this document I chose to present an example of a derived exercise from the same Bruckner excerpt discussed previously.

Don Little's Bruckner Example

This example is an exercise developed by University of North Texas tuba professor, Don Little. Little took the same familiar melodic motive shown above from the Bruckner 4th

Symphony and created this exercise[68] in two volumes for his tuba, euphonium, and bass trombone students.



This exercise is then used as a tool for students to practice control of dynamics and style in different registers. The entire exercise is a two volume set. The first volume of this exercise is repeated beginning a half step higher on each successive line as you continue down the page. This is to enable tuba, euphonium, and bass trombone students to gain security in their higher range while still playing a familiar melody from the orchestral repertoire. The second volume of the exercise starts the same as the first, but descends by half-step at the start of each successive line to develop the low range of the students. The dynamics and style should be stressed above all.

Little indicated very specifically how each line of the exercise is to be played stylistically. The first half of the line indicates the motive to be played accented and at a fortissimo volume just as the excerpt from the actual piece of music is to be played. The second half of the line, however, is a bit uncharacteristic of the motive. Students must learn to play at all volumes and in all styles, so this is a helpful exercise in that regard.

The same discussion of the relationship between tonic and dominant as described in the direct teaching segment can be incited with this exercise. Being that Little based his exercise on the Bruckner motive, the descending pattern of notes outlines the tonic triad. Each line of the exercise moves by half step, either higher or lower depending upon which volume, until the player is out of his or her playable range. As the exercise progresses each successive line

[68] These and many more exercises may be found at <http://www.iteaonline.org/pedagogy.shtml>. It is necessary to have a membership to the International Tuba and Euphonium Association to access the exercises in this section.

changes key. This allows teachers to introduce the concepts of key and tonal center. Teaching students to understand the concept of a tonal center is imperative to their development as a musician.

Tonal Center

Identifying tonal center is not an easy task if students have no prior knowledge of scales. It is necessary to ensure that, just as in the direct study method, students understand the workings of the major scale. The process of identifying tonal center should be grounded in the ability to recognize the relationship between a scale and its key signature.

1. Begin with the first line of the Little "Bruckner Exercise" and incite a discussion with the student about their opinion on possible keys of this line.

Guide the discussion towards the presence of accidentals and ask the students what scale he or she knows that contains that many flats/sharps. This step could take a great deal of time if the student does not have a strong background in major scales.

2. Once the student is able to identify the scale ask him or her to play the scale in question.

Discuss with the student what led him or her to that conclusion. Becoming more comfortable in having discussions about music is crucial to the development of a musician. I present my students with authentic situations that occur in college music classes so that they may become accustomed to having musical discussions.

The next use I have found for this exercise, and many others similar to it, is teaching the basics of transposition.

The Necessity of Transposition

As a brass teacher I am often asked to teach the basics of breathing, buzzing, and tone to all beginning brass students rather than just students of my principal instrument. Because of this I have found it necessary to be able to transpose many different instrumental parts. Learning to transpose is very challenging and should begin to be learned once a student reaches high school.

The basics of transposition can be learned from this exercise, as well as many others similar to it. The principles of transposition are grounded in the order of flats and sharps. Students should be asked to learn keys as associations to scales and melodic persuasions rather than simply how many sharps or flats are in the key signature. Strong background knowledge of scales and the relationship of key signatures to scales is the first step to learning transposition. The way of learning scales as presented in the direct study method above allows students to learn scales by hearing the relationship between every note in the scale rather than simply learning the fingerings. Once scales are mastered this method of teaching basic transposition may be utilized.

1. Begin by asking the student to learn the first line of the Little exercise.

2. Then turn the page over or cover the music in some way, and ask the student to raise every note in the exercise a half step and play it again. Allow the student to look at the second line of the Little exercise and discuss the new key after the alteration has been made and the student is able to play the exercise again. Ensure that the student makes the connection between the alteration and the resulting key.

3. Discuss the basics of transposition with the student. Start out by dealing with half steps, but then introduce the major, minor, augmented, and diminished intervals. This is an opportunity to present the student with the concept of intervals. Ask the student to identify each interval of the

major scale both from note to note, and the interval from each scale degree to the tonic. This same process should be repeated with minor scales after the student learns them..

4. Ask the student to play the exercise in different keys without looking at the music. Always ask to hear the major scale of the corresponding key. Guide the student through a discussion of the tonic triad and present the concept of scale degrees and the chords that result from those scale degrees. By using the logical progression presented in this method, students will be able to build a strong foundation in major keys and tonic triads, as well as develop stronger aural recognition of tonal centers..

PROBLEMS FACED BY TEACHERS WHEN ATTEMPTING TO QUANTIFY THE SUCCESS OF EACH METHOD

The Experiment

I conducted an experiment with three students from my studio in order to determine the effectiveness of teaching music theory through direct versus indirect music examples. This experiment produced no statistical results, but rather affirmed my suspicions about the benefits of catering to individual learning styles and the dangers of attempting to force each student into a set methodology. The experiment itself was rather simple. Over a period of weeks I presented each student with three examples of music from the Baroque period. For the purpose of this experiment I provided all three students with my own duet arrangement of *Invention No.1 in C Major* by J. S. Bach. This piece contains such a high tessitura for the tuba that no transposition was necessary for Student B, the euphonium player. I employed three different ways of identifying sequences in this piece of music. I identified sequences in general as well as circle of fifths motion specifically. The students were presented material from the source in these ways:

1. I pointed out a sequence and asked the student what pattern it contained.
2. I played a sequence and asked the student if they heard a pattern.
3. I asked the student to play a sequence and asked if he or she heard and/or saw a pattern.

The Subjects

For the purpose of this document and these students' anonymity, they will be referred to as Student A, Student B, and Student C. I chose these students based upon their playing ability, similarity of age, dedication to music, choice of electives, individual ensemble placement, and

their individual personal musical interests. Students A and C are both tuba players while Student B is a euphonium player. Students A and B are both juniors in high school and have both taken a year long music theory course at their high school. Student A is a senior and has not had any theory classes. Each student is in a different playing ensemble at their high school. All three students attend the same high school.

The Results

As I had suspected, each student responded best to their preferred learning style. Student A is an audio learner, Student B is a tactile-kinesthetic learner, and Student C exhibits strengths in both audio and visual learning, but is predominantly visual. My own definition of success for each student, however, was completely different than I had first thought.

Student A

This student is very interested in jazz and improvisation. The opportunities for a tuba player in a high school band program who is interested in performing with a jazz ensemble, however, are very limited. Therefore I structure my lessons with this student around his natural ability to play melodies by ear and improvise melodies over a bass line. I bring him many listening examples consisting of Rich Matteson, Sam Pilafian, The Modern Jazz Tuba Project, etc.

It puzzled me, however, that this student was able to improvise melodies, but could not improvise a bass line. For a jazz tubist, the most common request is to walk a bass line, so this was a shortcoming. I then took on the task of building a foundation of music theory for this student so that he could understand the workings of functional tonality and the way a solid bass

line is constructed. I began to direct our sessions based upon the different roles, melody or bass, of the tuba in the recordings.

From my experiment, however, I found that this student could not visually identify sequences presented to him in the piece of music. When I played the sequence in the piece of music he was able to identify that a pattern was present. Finally when he played the sequences in the piece no sequential pattern could be recognized from his own part, but rather from hearing my part of the duet.

The problem I found, then, was whether I considered this student's ability to recognize sequential patterns aurally a success or whether I considered his inability to recognize sequences at sight or while playing a failure on my part.

My solution was to present Student A with more visually dominant lessons in an attempt to raise his visual learning ability to the same level as his aural learning ability. This resulted in a long and tedious explanation of the harmonic motion of the *Sarabande* from J. S. Bach's *Unaccompanied Cello Suite No. 5* arranged by Gary Palton. Neither the student nor I enjoyed this lesson. Based upon Student A's reaction to this method I resolved not to present material in that way again.

My next approach was to couple visually talking about the harmonic motion while playing the *Sarabande*. This proved to be the best method. Student A was able to employ the strength that he already had to aid in learning the new concept of visually identifying these sequential patterns when we discussed what he was hearing after each time he played. I also offered at the beginning of the lesson, as an incentive to work hard, an entire lesson in which I would walk bass lines and Student A would be allowed to improvise as much as he wished.

I came to the conclusion through this particular encounter that presenting theoretical concepts implicitly for an audio learner works better than presenting them explicitly. However, a problem of not being able to carry over knowledge of the same concept to another piece of music is a problem that needs to be addressed carefully. By structuring lessons around this student's strengths and presenting concepts in a multisensory fashion I found that the most success is achieved. This method of teaching is not my own, but an adaptation of the teachings of Arnold Jacobs. Jacobs believed, "The ability to learn is greater than the ability to teach."[69] Accordingly, the problem, I found, lies not with the student, but with how I as the teacher present the information.

Student B

In preparation for All-Region auditions this student was struggling with areas of the audition etudes that contained sequential patterns of notes. Because this student was currently taking music theory at the time of my experiment I issued him/her an assignment. I asked that this student identify all intervals contained in a certain section of the Bach Invention which contains a sequence which moves by fifths, as well as practice the primary part of the duet. Upon returning the following week I found that this student was able to identify all of the intervals in the section that I had assigned and discussed the assignment with him/her. After discussing the relationship between the intervals and the pattern that emerged we played the duet. Upon playing, I found that this student still had difficulties with the sequential pattern of intervals. I then played the sequence for the student and discovered that he/she was not able to aurally recognize that a pattern existed. In fact the student had difficulty locating where I began playing on the page.

[69] Frederiksen. 91.

This presented yet another problem. This student was able to identify intervals from one note to the next in a sequence by fifths. However, this same student could not recognize a pattern aurally at all. If I were to grade the assignment I issued the student would have received a perfect score. The application of the knowledge gained from the assignment, though, is a completely different matter.

What I have since discovered about this student is that he/she is a tactile-kinesthetic learner. A student with this type of learning style is best reached by movement and touching. Learning from my mistake of attempting to force Student A to learn in a way outside of his/her personal learning modality, I opted to appeal directly to Student B's learning preference. So, for the next several lessons we buzzed together while playing the piano. I started with simple C major scale exercises at first, but then gradually moved to playing and buzzing, still at the piano, the very sections in which this student was having the most difficulty in the All-Region etude. Once again, a multisensory approach worked better than any method alone.

The problem that arose was this: If a student can exhibit understanding on a theory work sheet, does this same student make a connection between the theory and the music? In this particular instance the answer was no. By presenting theoretical concepts in multisensory manners, implicitly, explicitly, and as many other ways that could possibly help in not just comprehension, but creating a connection between the theory and the music a much deeper understanding of the music itself is gained. I fully support Rogers in the belief that theory should be an activity. However, I would add that theory should be an activity that involves more than just reading music. Theory should involve playing, listening, and reading music.

Student C

This student is a very talented high school tuba player. His/her tone is characteristic of

that of a rather advanced player. Because this student took a year long course of music theory at the high school in which he/she attends, I was anxious to find out how he/she would respond to my experiment. My discovery was this: This student, even though he/she had studied music theory for an entire year, was no better at identifying the sequential pattern aurally than Student B, and no better at recognizing the sequence of fifths while playing than Student A.

I quickly discovered that the theory class taken by this student did not create a connection for him/her between theory and music. I believe that the only reason theory should be taught is to teach students to draw a connection among the music they are playing, the music they are hearing, and the music they are seeing. Even with this student's high levels of visual and audio learning modalities, far superior playing ability, and familiarity with classical repertoire, he/she was no better at making this connection than the other two students.

The problem then becomes: How may I best present the theoretical concept through music so as to help students draw a connection between music and theory right away? This is very difficult because most students in middle school and high school do not know enough about music in general, much less specific pieces to help them understand basic theory concepts. I encourage my students to listen to many types of music. Even pop music has benefits because of the dominance of I-IV-V-I chord progressions. Simply being exposed to theory actively in music allows me to draw upon students' experiences so that they feel as if they are contributing. Allowing the students the opportunity to discuss shows them that I value their opinions and what they have to say.

CONCLUSIONS

From my experiment I found that music theory is best understood when students have some sort of experience or prior knowledge to relate to. Even if this prior knowledge is just the B-flat major scale, it is never too early to start presenting students with basic theoretical concepts. I teach theory to give my students a deeper understanding of the music they are playing. I make the music more than just notes on a page by showing students that music has meaning. By teaching students to be actively involved in the music they are playing, reading, and listening to a teacher is able to show students that playing music is a gift rather than a task.

Ultimately I want all of my students to pursue their own personal endeavors. If a future in music is where a student wishes to be then I will certainly be able to prepare him or her for that future. However, I am not a music teacher to train only virtuosos or those students I believe will pursue music in college. My main goal with all of my students is to equip them with the tools necessary to gain a deep enough understanding of the music that they are performing at the time, and will perform in the future, so as to foster a lifelong love of music. This goal is attainable as long as the students' individual strengths are identified early on, and can be used to help structure the lessons. Great teachers, like great musicians, only become great over many long years of practice and experience. The experience gap can be eased for younger teachers by attempting to remain current with research in the field of music, music theory, music history, educational psychology, teaching, etc. All fields that increase understanding of music and music teaching are pertinent to me.

There is a continuing need for research in the field of educational psychology and how it relates to music. As noted previously, Piaget did nota ddress the aesthetic modes when formulating his theory of cognitive development. Until recently, brain imaging was not possible,

and should be incorporated into the study of music and the study of how humans learn music. By using the resources available I believe that the field of music as well as the field of educational psychology will benefit. Music is very different than any other subject excepting language. There is a definite correlation between music and language, but the research investigating that correlation is still in its infancy. As previously mentioned, "...both music and language (including signed languages) are organized temporally, with relevant structures unfolding in time."[70] However, there is still much work to be done. Ever more creative research projects are being completed and proposed to further explore this topic. Looking toward the future and to the generation of musicians currently taking private lessons, practicing, and studying music is where the mark must be made to continue this work.

[70] McMullen.289

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