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### Creative Practice for Classical String Players with Live Looping

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CREATIVE PRACTICE FOR CLASSICAL STRING PLAYERS  
WITH LIVE LOOPING

By  
CALEB YANG

A RESEARCH PAPER

Submitted in partial fulfillment of the requirements for the degree of  
Master of Music in Commercial Music  
in the School of Music  
of the College of Music and Performing Arts  
Belmont University

NASHVILLE, TENNESSEE

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Submitted by Caleb Yang in partial fulfillment of the requirements for the  
degree of Master of Music in Commercial Music

Accepted on behalf of the Graduate Faculty of the School of Music by the  
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## **Introduction**

This research paper will investigate the greater need for creative practice in music education for string players. Within the scope of five chapters, the concept of live looping will be examined as a practice tool that enables string players to record and layer themselves playing on their instruments. This technique will help develop new skills of musicianship, participate in non-classical genres, and explore their own creative voices.

The first chapter focuses on the current state of string education programs and curricula, exploring the challenges that are innate in creatively engaging students in string studies. This chapter will investigate the growing problem of attrition in learning a string instrument, presenting this problem as being a result of minimal discussion regarding or the complete absence of improvisation in private lessons and classrooms today. The decline of improvisation in classical music or Western art music will be examined. Because priorities of string education today have been outlined primarily to prepare students to perform classical music, improvisation is often avoided entirely in string curriculums.

The second chapter highlights the history of live looping beginning with technological advancements in music led by Avant-garde composer Terry Riley, as well as Robert Fripp and Brian Eno's tape looping method known as "Frippertronics." The rising popularity and usage of looping electronics by everyday musicians as a practice and performance tool will be discussed. This chapter will also demonstrate how live looping works in various settings, based on the capabilities of several live looping equipment at different entry level price points on the market. Other necessary equipment



for one's signal path, including a pick up, microphone, audio interface, and amplification, will be addressed. Software programs that string players can utilize to experiment with the same concepts as a loop pedal will be discussed briefly as an alternative to a live looping hardware setup.

The third chapter will examine live looping particularly as a regular practice tool. The question of whether creativity can be fostered during individual practice will be examined. The effectiveness of live looping as a regular practice tool for developing musicianship and creative skills will be examined for string players of varying abilities. Developing the ear as well as the challenges that string players face when practicing creatively will also be discussed in this chapter. This portion of the paper will explore learning concepts such as "flow theory" to evaluate the effectiveness of using live looping as a productive practice tool. This concept was originally advocated by Hungarian-American social psychologist Mihaly Csikszentmihalyi, describing his research in the following quotation: "Flow is an optimal psychological state that people experience when engaged in an activity that is appropriately challenging to one's skill level, often resulting in immersion and concentrated focus on a task" (Akutsu 2020, 4). Examples will demonstrate how live looping can assist string players facilitate "flow" while practicing.

The fourth chapter will examine how string players can gain confidence and skills to participate in non-classical genres through using a loop pedal. Live looping can help string players grow in stylistic versatility and develop groove-based music skills, equipping them to participate in music making traditions from non-western-classical genres. Over the years, folk musicians have grown educational workshops on alternative

string styles around the world “teaching all styles of playing at fiddle camps, events, and universities” (M. Perdue 2019, 4). Fiddle camps have also grown to include larger faculties and more world recognition through distinguished musicians such as Scottish Fiddler Alasdair Fraser. However, despite a diverse development of non-classical style offerings for young musicians at fiddle camps and even collegiate program offerings, “it is still rare to find a blend of both classical and non-classical music education in any complementary formalized context” (M. Perdue 2019, 5). This lack of integration between classical and non-classical teaching approaches often leaves students without the chance to experience whichever approach is excluded. Learning American roots music such as jazz, blues, and folk from aural traditions can help students listen more closely to musical vocabulary, phrasings, and articulations while introducing the concept of “style” (Nadler 2010). In this research paper, the rhythmic bow work from fiddle styles and harmonic internalization inherent with jazz improvisation will be examined and applied to looping techniques.

The fifth chapter will discuss the development of a personal creative voice for string players using a loop pedal. Developing arranging and compositional skills by looping one’s own musical instrument can help string players begin creating original music and hear multiple parts of music simultaneously. Looping allows for string players to explore new compositional ideas by stacking harmonies or interlocking rhythms through a live loop. Through basic projects such as creating variations on a theme via looping, students can explore the concept of composing in its simplest forms. This type of musical training will help students gain the skills and confidence to arrange any song. Attrition for young string students can be curbed by helping students find their inner

voice and connect their listening interests directly with the sounds that they can produce on their instrument.

The lecture recital portion of this project will demonstrate methods and approaches that string players can practice with a loop pedal presented in beginner to advanced levels. In conclusion, the objective of this paper and lecture recital is to show how the loop pedal serves as an integral tool for string players and teachers to incorporate into their lessons and practice routines to address the need for creativity in string education. Practice routines that develop creative music-making skills are essential for the development of string players of all levels. The benefits from practicing with live looping will help positively reinforce aspects of musicianship, open opportunities for learning new styles and skills, and help string players begin arranging and composing. Encouraging an early musical foundation with improvisation in string education will help develop artistic expression available to the student at more advanced levels in their musical journey. Ultimately, the excitement of artistic expression can help promote a long-lasting relationship with music in one's life.

## **Chapter One**

### **A Greater Need for Creativity in String Education**

Learning to play a string instrument is difficult. The physical aspects involved with producing a good tone are enough to overwhelm a young player who is also learning to read music while building basic skills of musicianship. Fundamental teaching points in most classical string lessons understandably focus on left- and right-hand technique, intonation, and rhythm. Etudes, scales, and method books are used to aid the learning process while building the necessary foundation to assist a classical string player's musical development and facility on the instrument. Unfortunately, these concentrations can be developed in early musical training without any engagement of a student's creativity. When that is the case, string players often quit out of frustration without the opportunity to reach the point of technical proficiency where they can play their instruments purely for the love of making music.

The lack of exploratory "play" can negatively contribute to the problem of attrition in early string programs or private lessons because creative expression is one of the major joys of playing an instrument. Studies reinforce this reality as most young people who begin string music lessons end up never picking up their instrument again following secondary education (Sabra 2015). Unfortunately, the structure of early classical string methods does not allow young children the space to use their instruments

to explore or “play” in a self-driven creative approach during the learning process. The importance of “play” in a child’s development has even been acknowledged as a right of every child by the United Nations High Commission for Human Rights. Early string education frequently assimilates to today’s “increasingly hurried and pressured” culture, sacrificing the emotional, physical, and cognitive benefits of “child-driven play” (Ginsburg 2007).

Some teachers have found success incorporating music that students like to learn in their lessons or classrooms as a “motivating tool” to increase engagement (Alibrio 1988). Learning familiar popular songs may provide a fun change of pace from notated exercises or pieces; however, these assignments can often be approached in the same way as learning any other song or method book piece, via sheet music. To develop creativity and encourage students who are struggling or losing interest in playing their instruments, teachers must help their students think differently about music-making.

Classical music training is sometimes compared to that of an elite sport. “It comes with a blueprint; errors are immediately apparent; it requires repetitive practice . . . until execution becomes automatic and deviation is minimal” (Epstein 2021, 67). In the same way an athlete trains at their particular sport, a young musician’s progression with music can be viewed linearly in the acquisition and honing of new skills that compound on one another. It could be postulated that an early start and narrower path of highly-focused study and practice would be the most advantageous way for string players to become proficient classical players more quickly. However, this is not always the case when a gifted student’s technique progresses faster than his or her love for music-making.

Unfortunately, it is not at all uncommon for classically trained string players to stop playing their instrument altogether somewhere along the path of music training.

The string pedagogy curriculums that are commonly taught today typically apply a singularly classical approach. Although students are often interested in other styles of music beyond classical, music learning checkpoints for string instruments are typically viewed in regard to the skills and dexterity required to prepare students for solo, chamber, and classical orchestral string playing. The emphasis of most popular string methods favoring the “exclusive study of Western European classical music” is presented in the introduction of American string educator Julie Lyonn Lieberman’s book *Alternative Strings: The New Curriculum*. Beyond Western European classical music, string instruments can be heard as featured participants in a multitude of genres and music traditions around the world. According to Lieberman, “alternative” string styles include “close to thirty folk, world, jazz, and popular styles that feature strings” (Lieberman 2004, 5).

Perception in the string community surrounding the exploration of alternative string styles through a pedagogical lens has seen a shift in recent years. Lieberman describes how some interactions at faculty meetings were questionable in her experiences having been hired by the Julliard School in the 1990’s to teach “Musicianship Through World Music for the Music Advancement Program (MAP).” When questioned about the validity of her material at the institution, she replied with the following: “In all conscience, I cannot teach young people that there is a hierarchy among the musics of the world. How can you say that there is nothing of value students can learn about the melodies, rhythms, scales, structures, theory, or practice techniques created by the rich

musical imagination of all cultures?” (Lieberman 2004, 11). Lieberman’s mission for her book *Alternative Strings: The New Curriculum* is to inspire educators to create a culture of learning that embraces “all cultures and their unique creative contributions to life and music” (Lieberman 2004, 14).

One of the major distinguishing factors of folk music around the world is the usage of aural methods of preservation in contrast to written notation. This results in folk musicians exercising creativity on a consistent basis through arranging songs from memory and improvisation. “Improvisation” in music involves the freedom of creating passages of music in a spontaneous manner while often adhering to stylistic norms. In short, “music originated as improvisation and is still extensively improvised” in music traditions around the world, especially Eastern traditions and modern Western traditions such as jazz (The Editors of Encyclopaedia Britannica 2012). Forms of improvisation such as chordal improvisation, melodic variation, and improvisatory solos are fundamental to these styles of music.

In comparison, classical musicians have focused less and less on improvisation skills over the centuries in their music-making which has resulted in modern string pedagogy methods that have almost entirely removed improvisation from their curricula. A lack of improvisation in classical string training today potentially contributes to beginning- and intermediate-level students feeling disconnected from the creative aspects of music.

The decline of improvisation in traditional string pedagogy has also impacted many classical musicians at advanced and professional levels. In addition, the search for “perfection” in competition settings in conjunction with the aim of achieving historically-

informed performances has resulted in advanced students and professionals avoiding musically-acceptable opportunities for improvisation as overtly risky. A historical practice used by classical soloists featuring improvisation can be found within the context of a concerto cadenza section. However, the elimination of such improvisational practices or avoidance of cadenza sections altogether for exams and competitions have become normalized (The Strad 2017).

Classical musicians have not always steered away from improvising in music. Classical musicians of the past relied heavily on improvisation for music-making as most composers and performers from the “emergence of western classical music until the first half of the 20th century” had incredible improvisational skills (Moore 1992, 62). In the study of improvisation in Western music, musical historians today point to historical records revealing the importance of “musical embellishment, ornamentation, alteration, and even freer forms of improvisation . . . to the development of Western art music from the Middle Ages until the mid-19th century” (Ibid). Virtuoso musicians including “Brahms, Paganini, Chopin, Clara and Robert Schumann, Mendelssohn” and many others were “. . . accomplished improvisers in addition to composers and/or performers of precomposed music” (Moore 1992, 63).

In addition, early European music that developed from Roman Catholic chant into polyphonic medieval music is rooted in improvisation. The development of cantus firmus improvisations utilized ostinato basses which were, “relatively short repeated bass patterns.” These featured an improvisatory melody over the cantus firmus. Organists used improvisation freely “as a primary musical activity in no way at odds with written composition.” Many freely composed keyboard improvisations developed into “hundreds



of preludes, toccatas, and fantasies written during the past three centuries” (The Editors of Encyclopaedia Britannica 2012). Variation-based melodic improvisation arose in popularity in the form of improvisational contests that featured challenges between virtuoso composers of the time. The ability to compose classical music in real time for audiences was considered highly “respected” and “entertaining” (The Strad 2017).

Classical music was also improvised in court settings by the “Mozarts” of the time using the musical style of the 1770s court music “. . . in much the same way that well known improvisers of more recent times, such as Louis Armstrong or Ravi Shankar, grew up surrounded by and participating in (their) particular music cultures...” (Moore 1992, 68). Classical music-making was a communal activity in which members of the court would play improvisatory music at homes, religious events, dances, and theaters. Much of this music in the eighteenth century was an “ubiquitous element of court life, transmitted orally, most likely to a greater extent than notationally...” (Ibid).

The performance of western art music undertook a shift as the music moved “from the court to the middle class parlor, and eventually to the auditorium” (Moore 1992, 69). Classical music was no longer confined to one sociological group in the courts, but rather became an endeavor in which anyone could participate given they had enough money to afford an instrument: “Printed editions of classical music became more readily accessible than ever before, and the numbers of individuals able to afford keyboards, strings, and wind instruments also grew rapidly” (Ibid). As a result, the democratization of Western art music was fueled by the introduction of printed music and by the growing population of middle class individuals and families.

Printed music enabled more people in everyday society the ability to learn, hear, and perform classical music. Instead of hiring professional musicians, individuals could learn music themselves. They could also engage with unfamiliar styles of music through reading sheet music containing the necessary musical instructions: “Sheet music became a means of learning aristocratic music for those who had no exposure to it in its original context” (Moore 1992, 72). However, this advancement in technology also marks the point in which classical music moved away from being transferred purely in an aural form, and towards a formal study taught primarily from the notated page. Today, the result has led to generations of amateur to professional classically-trained string players who are unlikely to ever improvise music without sheet music.

Aside from preserving the historical nature of pieces, sheet music has also enabled success in performing intricate arrangements. In classical ensembles or orchestral settings, it is essential for players to be able to interpret what is written on the page authentically and similarly with others in that ensemble group. This confirms the importance of pedagogy methods that emphasize the skills necessary to play exactly what is on the page to serve one’s function in an ensemble. Conversely, styles that rely on passing songs forward aurally inherently utilize the ear and one’s memory differently. If a folk musician forgets a section of the music, they can replace it with variations (Lieberman 2004, 8). In contrast, sheet music often limits the student to the exercise of visual skills over aural ones. This can hinder memorization and increase overall performance anxiety in any style of music. Too often, music-making on string instruments can become a stressful experience for students, thereby sacrificing the joy of playing music in the first place.

Moving forward, it is essential that a major shift occur in the approach to string education to incorporate improvisatory playing along with classical while emphasizing the importance of developing creative musicianship skills, to aid students in growing their love of music making. The Suzuki Method has been one of the most popular beginning string methods since its introduction to the United States when the American String Teachers Association (ASTA) “co-sponsored a tour of Shinichi Suzuki and a group of his students...” (Ogrodny 2013, 1). The creator of the method, Shinichi Suzuki, believed that anyone could learn to play the violin: “All human beings are born with great potentialities and each individual has within himself, the capacity for developing to a very high level” (Kendall 1973, 7). Suzuki’s belief in the musical potential of every individual has contributed significantly to the evolution of string education. Violin pedagogue Paul Rolland, who was the first editor of the *American String Teacher*, worked with Suzuki and eventually with the National Association for Music Education to create content standards for different grade levels between kindergarten to twelfth grade. The National Standards for Music Education, originally targeting the classroom setting, aimed to also inform private study settings on string instruments. The content standards are as follows:

1. Singing alone and with others, a varied repertoire of music
  2. Performing on instruments, alone and with others, a varied repertoire of music
  3. Improvising melodies, variations, and accompaniments
  4. Composing and arranging music within specified guidelines
  5. Reading and notating music
  6. Listening to, analyzing, and describing music
  7. Evaluating music and music performances
  8. Understanding relationships between music, the other arts, and disciplines outside the arts
  9. Understanding music in relation to history and culture
- (Blakeslee 1994, 26-29)

Addressing this list of national content and achievement standards reveals the absence of important teaching concepts “traditionally left out of standard Suzuki pedagogy that are vital to the overall understanding of music . . . (such as) harmony and improvisation” (Ogrodny 2013, 27). More specific national standards for ninth through twelfth grades mention that students should be able to improvise and harmonize in a “stylistic manner in various styles” (Blakeslee 1994, 60). In 2011, a new ASTA curriculum was released for string students. The following points of emphasis were intended for classroom and private instruction:

1. Executive Skills and Knowledge—those technical skills and understandings required to physically perform on the instrument, such as body format, bowings, etc.
2. Musicianship Skills and Knowledge—those elements, such as understanding rhythms, aural skills, note-reading skills, etc., that relate to musical understandings.
3. Artistic Skills and Knowledge—those elements that relate to the creative and expressive side of music-making, beyond mere performance, such as improvisation, performance with artistic understanding, etc. (Benham et al. 2011, 17)

Although many teaching objectives of these categories are reinforced using popular pedagogy methods such as the Suzuki Method, there are learning opportunities within the musicianship and artistic skills that are currently missing from many string student educations. These gaps require the application of improvisation: “The Suzuki Violin Method does an excellent job of teaching technique and ear training through melodic horizontal relationships. However, the addition of the teaching of vertical harmonic pitch relationships and improvisation will greatly enhance the abilities of students studying the Suzuki Method” (Ogrodny 2013, 30). Helping students become aware of “vertical harmonic pitch relationships and improvisation” early on will not only

help enhance their musicianship skills, but also enable a deeper connection to music fostering opportunities for creativity.

In conclusion, improvisation should be a fun experience regardless of one's limited or professional experience on their instrument. In an interview for The Washington Post, "leading classical concert violinist" Hilary Hahn describes her experience at the age of thirty-two when working on a project with singer-songwriter Josh Ritter. She shares that she had prepared what she would play in advance only to be notified the day of the show at the rehearsal that Ritter was playing in a different key than in the one that she had prepared. Hahn was forced to improvise a new part for the first time at the performance, referring to the moment as "exhilarating" (Midgette 2012). Experience with improvisation enables opportunities for string players to be more equipped for creative opportunities, collaborations, and memorable moments of music making.

## Chapter Two

### The Rise of Looping Electronics

Musical repetition is embedded in nature in the forms of recurring sounds, patterns, and rhythms. Waves crashing onto a beach, crickets chirping in a field, and even the feeling of one's own heartbeats resemble examples of music-like repetition.

Repetition has also played a major role in the origins of music traditions around the world. "Our first melodies were taught to us by birds and other animals, all of whom also employ repetitions in their songs" (Peters 1996). This fundamental feature in repetition has ultimately influenced the evolution of music around the world. In the twentieth century, innovative musicians and composers pushed the boundaries of technology by approaching timeless qualities of musical repetition in unprecedented ways to compose a new style of music.

In 1963, minimalist and Avant-garde composer Terry Riley introduced the world to his tape delay technique on twin-tape recorders set-up through *Music for the Gift* in which he looped music from Chet Baker's quartet. Six years later, Riley's composition, *A Rainbow in Curved Air*, became the first tape loop to be incorporated in a live performance, displaying a new way for song construction using "layered repetition" (Madden 2019). King Crimson's guitarist Robert Fripp followed in Riley's direction and developed a tape looping method known as "Frippertronics." In 1972, Robert Fripp and

Brian Eno tinkered with a tape system developed by Riley and worked out an analogue delay system that allowed Fripp to create multi-layered guitar soundscapes live in performance (Osborne 2021). This breakthrough set the technological groundwork for “live looping.”

Live looping machines record a phrase and can repeat it endlessly as the musician overdubs subsequent phrases on top of each existing phrase. The term “live looping” refers to digital machines and software that accomplishes the slow buildup of new musical layers as introduced in older tape technologies (Peters 1996). Despite the rising dominance of computers in music production, live looping machines continue to remain useful to musicians. They enable the recreation of a musical aesthetic reminiscent of tape projects such as *A Rainbow in Curved Air* within the digital realm. Although digital delay technologies were available to musicians in the 1980s, it was not until the 1990s when “the first dedicated loop machines hit the market and made consequent building of loops possible” (Grob 2003). These first loop machines included “the Loop Delay (1992, became Echoplex digital pro in 1994), Lexicon JamMan (1993) and Boomerang (1996)” (ibid). Today, digital live looping machines and software are most commonly used in the form of a pedal which are often used by guitar players and connected to other effect pedals.

Loop pedals grew in popularity as increased manufacturing improved availability and affordability for everyday musicians. There are at least two different functions on every loop pedal. The first function is the record button. When this button is initiated, the music being played by the musician is recorded until the button is activated again which stops the recording. This establishes the specific time frame for the track to build on

when a musician is multitracking the various parts. The next function is the overdub button, which allows the musician to either record over the established loop or play without recording new layers. Some loopers only have one button, combining both the record and overdub functions.

Live looping technology allows solo artists to practice, compose music from home, and even perform entire shows in new ways using a few buttons with their feet. This live capability from looping redefined the meaning of the “one-man band.” In contrast to playing multiple instruments simultaneously, such as the multi-instrumental performance done by Dick Van Dyke in the film *Mary Poppins*, artists could now accomplish a multi-instrumental effect with a loop pedal and one instrument or microphone. One of the more advanced looping setups in use by a popular musician is a custom built loop pedal utilized by pop singer song-writer Ed Sheeran. Sheeran has used his custom built “Chewy II” to perform solo for concerts spanning over two hours. He broke the attendance record at Marvel Stadium during his ÷ World Tour in Melbourne, Australia in which more than 250,000 people filled the space over four consecutive nights (Pozzobon 2018). David White, the designer of Sheeran’s pedal, explains in an interview with *Mothergrid* the capabilities of his fully digital system that utilizes a custom written VST plugin called “Chewie.” This allows his massive pedal to serve as a remote, digitally sending information from his channels to engineers to mix live (Mothergrid 2018). With his looping setup Sheeran can record his guitar, a few microphones, and a small keyboard, layering unique soundscapes of timbres and rhythmic textures over pop song frameworks such as repetitive chord progressions and catchy melodic hooks.



Many loop pedals and digital looping software programs are currently on the market with a variety of features and price points. In 2021, a *Guitar World* article about essential looping equipment lists the “best looper pedals” on the market, manufactured by companies including TC Electronic and Boss (Lynham 2021). The TC Electronic Ditto X2 is a basic but popular option due to its reliability and affordable price. Lynham lists this looper as the number one option currently on the market, at a price point of \$169.00 at the time of this writing on Sweetwater, an online music equipment retailer. A more affordable and basic function loop pedal from the same company is the TC Electronic Ditto Looper. This looper is the number one option on a separate list of “The 7 best cheap looper pedals 2021” at a price point of \$89.00 on Sweetwater (Lynham 2021). The difference between the two pedals is that the TC Electronic Ditto only has one footswitch whereas the TC Electronic Ditto X2 has two, making it more comfortable to use live. The TC Electronic Ditto X2 can also “load loops via USB, which is useful if you want to use it to trigger sounds from a studio recording” (Lynham 2021). If the looper is used primarily for practice room or compositional purposes versus live performance, a basic function looper with one footswitch pedal would be sufficient for one’s needs.

More advanced looping rigs can record and control multiple channels separately in isolation, enabling more control for musicians over the arrangement of a song similar to Sheeran’s usage of live looping for solo gigs or shows. One of the most popular loop pedals for musicians in past years, the Boss RC-30, has been discontinued and upgraded to a new model called the Boss RC-500. The Boss RC-500 is possibly the “most powerful looper Boss has produced to date” (Lynham 2021). This looper has three pedals, making it possible to toggle between two tracks in stereo. This means that the musician can

record on two different tracks and switch between the two. In addition, the pedal features “13 hours of recording time—with 32-bit audio quality... both instrument and microphone inputs, stereo outputs and MIDI in/out, studio-quality effects and in-built rhythms, with 16 different drum kits and 57 preset rhythms” (Lynham 2021). This pedal, priced at \$369.99, would be a worthy investment for string players who are serious about exploring looping particularly as a performance tool. Loop pedals can include even more tracks and features at higher price points, allowing for more sophisticated live capabilities for arranging. For further detailed information dedicated to live looping setups, one can explore [livelooing.org](http://livelooing.org), a website “founded by a group of live looping musicians and festival organizers” (Wardrobe 2014). For the purposes of the scope of this research paper regarding looping string instruments for practicing improvisation and non-classical styles, the functionalities of the two TC Electronic pedals listed above provide enough features for string players to explore.

Beginning live looping as a string player requires one to dive into amplified string playing. The importance of amplified string playing for working musicians has gained significantly more recognition in recent years, as an understanding and control over one’s amplified sound is a necessity in a variety of modern gigging scenarios: “With all of the stylistic exploration taking place on the violin today, there has been an increasing demand on violin makers for an instrument that is capable of greater sound possibilities” (Lieberman 1995, 62) Command over such “sound possibilities” through amplification ultimately invite opportunities for string players to insert their instrument into a variety of different scenarios. Electric violinist Joe Deninzon promotes the ability to “plug-in” to help string players significantly in today’s musical landscape, encouraging them to

deepen their understanding of string amplification beyond using a microphone. “Playing violin through a microphone to be heard over a loud band just doesn’t cut it” (Deninson 2012). Electric violinist, composer, and educator Tracy Silverman is one of the leading contributors to the repertoire of “post-classical violin playing” in the progressive string community. He promotes the importance of amplification as not only a means to be heard over the loudness of various settings but also to participate authentically in the popular music of today. His approach to post-classical string playing combines “a sound as familiar as the electric guitar yet which retains the achievements and beauty of the last 500 years of string playing... [adopting] the musical vernacular of rock, jazz, and the popular musical culture that surrounds us outside the concert hall” (Schiele 2020). Silverman, with the help of Mark Wood, invented and revolutionized six-string electric violin instruments, to help introduce and solidify the violin’s place in amplified musical contexts (Schiele 2020).

Familiarity with the signal flow for amplification is incredibly beneficial for string players at professional levels. Unfamiliarity with “plugging in” their instrument can put string players at a serious disadvantage in their versatility when trying to work in today’s music scene. Owning a basic amplification setup and being familiar with such technologies specifically pertaining to one’s instrument will help with more opportunities to perform and collaborate in different amplified situations. A basic understanding of the workings of equipment in a signal path for amplified string players involves knowledge regarding the following: a pick up or transducer, preamp, amplifier, and possible pedals or multi-effect processor. For basic live looping setups, string players can focus on finding a pickup or transducer for their instrument, a looper pedal, and an amplifier.

Figure 2.1 shows a simplified diagram of a possible signal path for a beginning live looping string player.

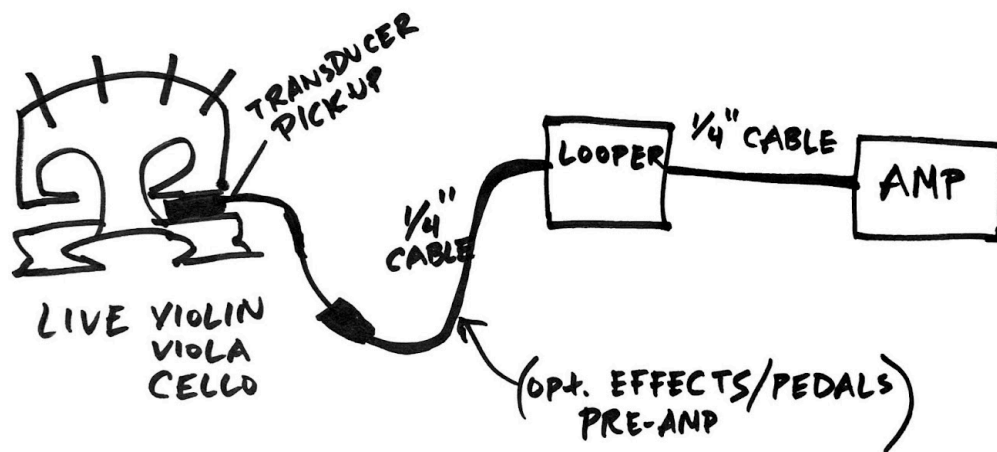


Figure 2.1 Signal Path

The Electric Violin Shop in Durham, North Carolina has provided helpful buying information for string players of all knowledge and experience levels of amplified strings with their team of experts. Duncan Monserud, one of their instrument specialists, suggests that players must find what works best for them with regard to pickups as a one-size-fits-all approach does not exist. If it is important for the player to be able to easily apply and remove their pick up between playing amplified and acoustic, Monserud suggests options such as the “Kremona, Fishman, MiSi, the Realist SoundClip, and Schertler pickups.” Permanent pickup options for frequent crossover string players include “bridge-replacement pickups such as the LR Baggs, Fishman, Schatten, or ISI Aceto/Violect Deluxe pickups” (Cahill 2019). Using a microphone can help preserve the

acoustic tone of the instrument in a pure form; however, it will only work with loop pedal setups that also have a microphone input such as the Boss RC-500.

In terms of amplification, Monserud suggests the “Fishman Loudbox Mini or Fishman Artist model amplifiers with pickups.” For smaller budgets and performance applications, Monserud recommends the “Kustom’s Sienna series acoustic amps.” For professional setups, Monserud recommends the “Acoustic Image and Acus amps, as well as Fishman and Bose personal PA systems” (Cahill 2019).

In many cases, purchasing an entire amplified string playing setup initially may not be possible or realistic. For teachers considering incorporating live looping into their instrumental classroom settings or for beginning string players simply wanting to experiment with the concepts of live looping, free software programs can help to bypass the entire equipment setup. Katie Wardrobe is a music technology trainer in Australia who is passionate about helping music teachers incorporate creative technology projects into their classrooms and curricula. Her website Midnight Music features resources for working on technology projects with elementary school to high school music students in affordable ways. Free digital audio workstations such as GarageBand for Mac and Audacity for PC users can be helpful tools for recording and looping, and Smartphones and tablets also have apps that enable basic loop pedal features. The best option in this category according to Wardrobe is Loopy HD: Looper which is \$4.99 on the Apple iOS app store (Wardrobe 2014). These programs can allow individuals to record and loop their playing, as well as multitrack multiple layers. All of the learning concepts and exercises discussed later in this research paper can be completed using one of these

programs, eliminating any additional costs beyond access to a computer, smartphone, or tablet and a pair of earbuds or headphones.

Although amplifying one's string instrument can be done in many ways, Table 2.1 contains three examples of different approaches for string players with different budgets and needs for playing live (tax not included). Prices can vary widely depending on whether the gear is bought new or used. Prices will also be higher if a string player is purchasing everything required for amplification at once, such as a pickup and amp in addition to the looping hardware. Table 2.1 suggests a few possibilities for looping setups; all prices listed are for new gear.

Table 2.1 Possible Looping Setups

	<b>Basic Live Looping Setup (No Amplifier)</b>	<b>Intermediate Live Looping Setup</b>	<b>Professional Live Looping Setup</b>
Loop Pedal	N/A	TC Electronic Ditto Looper (\$89.00 on Sweetwater)	TC Electronic Ditto X2 (\$169.00 on Sweetwater)  or Boss RC-500 Loop Station Compact Phrase Recorder Pedal (\$369.99 on Sweetwater)
Pickup	N/A	K & K Hot Spot instrument transducer (\$39.00 on Electric Violin Shop)	Fishman V-200 Professional Violin Pickup (\$159.95 on Johnson String Instrument)
Amplifier	N/A	10-Watt Electric Guitar Amp (Approx. \$50)	Kustom SIENNA30PRO Sienna Pro Series 30-watt Acoustic Amplifier (\$299 on Reverb)
Misc.	Garageband - Mac /Audacity Software - PC (\$0)  Or Loopy HD: Looper iPhone app (\$4.99)  and Any Earbuds or Headphones	2 1/4 Inch TS to TS Instrument Cable 1/4 Cable - 6 Feet (Approx. \$15)	2 1/4 Inch TS to TS Instrument Cable 1/4 Cable - 6 Feet (Approx. \$15)
Total Cost	\$0 - \$5	\$193	\$642.95 - \$843.94

Despite a growing awareness of the importance of amplification in the string playing community, technologies essential for amplified string playing have not been widely embraced by K-12 as well as collegiate string programs in the same way as by other instruments of popular music genres. Although accessibility can be a problem with integrating technology with string education, K-16 string curricula often do not allow enough time in their schedule for student-driven projects based around technology, amplification, and recording in favor of “preserving music programs as they are currently constituted” (Kaschub & Smith 2014, 63). In 2004, less than a quarter of high school seniors in the United States participated in their school’s traditional ensemble classes (Elpus & Abril 2011, 128). However, even though participation in traditional ensembles has decreased in recent years, there is no shortage of interest in enjoying and learning to play music. It is “exceedingly rare to find people who say they never listen to music ... It is very common to find adults who say they wish they could play guitar or keyboard or a variety of other instruments (Kaschub & Smith 2014, 65). Interest in playing the guitar has recently skyrocketed. In 2020, global guitar sales increased nearly 15% in one year from \$8 billion in 2019 to \$9.2 billion in 2020. The electric guitar consisted of 48% of total guitar sale revenue in the United States (Poole 2021).

In summary, technology has shifted the way in which music is created and communicated. Embracing music technology for string players is essential for engaging with the evolution of popular music today. This is not an entirely new concept in the history of music making: “Evolutions in music, musical practices, and the tools that people use to create, perform, and interact with music have been in a process of change since music’s inception” (Kaschub & Smith 2014, 140). In particular, the introduction of



live looping electronics, adopted widely by guitar players, has created more possibilities for musicians as a practice tool to experiment creatively on their own. String players can similarly integrate looping electronics or various recording software or applications to serve an integral role in practicing and developing skills of musicianship. Chapter 3 of this paper will examine how looping can increase engagement and focus for string students who are practicing on their own.

## Chapter Three

### A Case for Looping as a Regular Practice Tool

Individual practice is an important and essential aspect of developing as a musician. Dr. Kim Mieder, a published author and music educator, has written specifically on the topic of “adolescent self-regulation in music learning.” There are many challenges students face when trying to practice in an effective manner on their own. Dr. Mieder’s work suggests that it is common for young players to lack the necessary skills to “effectively navigate” through a practice routine that is organized, often demonstrating “unproductive practice behavior(s)” (Mieder 2020). Some of the most prevalent unproductive behaviors during individual practice for students include “Repetition without thoughtful intent, irrelevant playing, and lack of focus or problem-solving strategies” (Ibid). In contrast, effective and organized practice requires attentive listening and self-monitoring. The ability to listen and self-assess oneself is the key to experiencing effective practice. Listening skills must be developed alongside technical skills, which are not fostered through mindless repetition.

Jazz musician and educator Scott Reeves, the author of *Creative Jazz Improvisation*, wrote a book on techniques jazz musicians can practice to become more “creative” improvisers. To practice jazz improvisation in a creative manner, the musician must work on both the “preparatory work of assimilating the jazz vocabulary” and the

“actual act of improvisation” (Reeves 1995, 1). The bridge to connecting one’s preparatory work to a practical application of improvisation is constructed through strengthening one’s listening ability to hear and react with one’s body in real time.

According to Reeves, the “ear-to-finger” response can be developed through training the ear as follows:

Practicing scales, patterns and melodic ideas by ear in all keys trains the ear to recognize melodic and harmonic materials, strengthens the ear-to finger response, develops technical dexterity, helps the practitioner assimilate the jazz vocabulary, and, when practiced slowly with a metronome, helps develop a surer sense of rhythm. (Reeves 1995, 3)

Unorganized practice that does not address this technical work, nor train the ear to hear music in a detailed way, ultimately limits the ability to be truly spontaneous and creative when improvising in context.

Composer and pianist Bruce Adolphe agrees that improvisation begins with the development of the ear. Adolphe taught for sixteen years at Juilliard and noticed a fear of improvisation in new styles for young musicians in conservatories and music departments. In his book *The Mind’s Ear: Exercises for Improving the Musical Imagination for Performers, Composers, and Listeners*, he describes how the “inner ear,” or the ability for musicians to hear music in their head, can be improved through exercises: “The musical imagination and the mind’s ear can be improved by practicing the appropriate exercises, just as is typically done with instrumental technique” (Adolphe 2013, 2). Utilizing the inner ear requires musicians to “audiate” while listening, performing notated music, and improvising or composing. According to the Gordon Institute for Music Learning (GIML), audiation is “the foundation of musicianship” (GIML 2021). Audiation occurs when the musician can “hear and comprehend” music

when no sound is present, similar to the process of thinking in spoken language (Ibid). It is essential not only for improvising musicians, but also for classical musicians when reading notation from the page. According to music education researcher Edwin Gordon,

We audiate music and we read notation. Unless we can audiate what we write in notation, we cannot give musical meaning to notation. We are “faking” as we are reading notation. If we cannot audiate, at best all we can do is try to decode notation. Reading notation should not be an act of decoding, it should be an act of audiation ... Notation is intended only to assist us in recalling in audiation what we have already perceived and audiated. (Gordon 2007, 59)

The content of Adolphe’s book contains a wide range of musical games and exercises he created for his students at Julliard to engage the “musical imagination.” In addition, Adolphe argues musicians should gauge their practice sessions not on the quantity of hours completed but rather on the engagement of musicianship skills to address the “musical inner life.” As Adolphe explains, “Practicing for three or more hours a day, as many musicians do, will not produce a mature performer unless the musical inner life is also addressed. Strengthening the memory, imagination, and inner ear can lead to more meaningful interpretations, more communicative performances, and even shave off a few hours of learning-by-rote time” (Adolphe 2013, 3). This reveals that developing technically as a musician also involves strengthening creative aspects of music making stemming from the ear, such as the imagination. Addressing these aspects of musicianship should not be disregarded in one’s individual practice in favor of focusing only on technical improvements. Adolphe suggests that “The love of music, which originally motivated the student to choose an artistic life, should never be forgotten during training and study. The love of one’s art is an aspect of technique” (Adolphe 2013, 6).

General research on productivity and efficiency in a multitude of fields has led to the development of “flow theory.” This concept was originally advocated by Hungarian-American social psychologist Mihaly Csikszentmihalyi. “Flow is an optimal psychological state that people experience when engaged in an activity that is appropriately challenging to one’s skill level, often resulting in immersion and concentrated focus on a task” (Csikszentmihalyi 1998, 4). Csikszentmihalyi found that the phenomenon of flow theory can be experienced by anyone in any activity, from chess players to medical doctors. After a state of flow, individuals universally felt a great sense of reward completing the activity. In his book *Applying Flow Theory to Strings Education in P-12 and Community Schools: Emerging Research and Opportunities*, Japanese violin educator Taichi Akutsu connects how strategies to facilitate flow would not only help “facilitate and accelerate” children’s learning but also increase “children’s enjoyment of music learning” (Akutsu 2020).

In order to experience a state of flow, musicians must consider the optimal environment to give oneself a chance. There are five factors Csikszentmihalyi argues are critical to achieving a state of flow during an activity. First, the individual must find the task intrinsically rewarding, aligning with their “passions, interest, talents or desires.” Second, there must be clear goals set in the activity and a sense of progress throughout. Third, the task must provide immediate feedback so that the individual can assess oneself in real time. Fourth, the challenge level of the activity must match the individual’s self-perceived skill level. Finally, achieving a state of flow requires individuals to be intensely focused in the present moment with the task at hand (Csikszentmihalyi 2008, 49). Practicing with a loop pedal can be examined against the five factors.

The first factor of flow, finding the task intrinsically rewarding, will be examined first. Loop pedals enable string players to play music with themselves. In addition, the intrinsic reward of playing with a loop pedal could be the exciting feeling and increased participation when looping one's own playing. According to Csikszentmihalyi, "When the information that keeps coming into awareness is congruent with goals, psychic energy flows effortlessly" (Csikszentmihalyi 2008, 39). With live looping, this is especially true as every sound that is recorded and played back and heard is planned by the individual based on their specific goal or musical task at hand. Live looping as described by violinist Joe Deninson can be more "fun and challenging" than playing with pre-recorded practice tracks (Deninson 2017). This is attributed to the increased involvement for string players when live looping to "build an arrangement from the ground up... creating the rhythm, bass line, and harmony" (Ibid). As string players work primarily on melodic string playing with classical repertoire, it could be a rewarding experience to have the tools to set up a simple backing track. For example, a student could experiment with playing the rhythm section parts layer by layer in addition to the melody when learning or arranging a pop song.

The second factor of flow, creating clear goals, can also be exercised with a loop pedal. This factor focuses more specifically on the concept of streamlining focused practice and isolating particular aspects of music to work on. Smaller goals may involve learning a particular rhythm or utilizing a particular set of notes or scale pattern for improvisation. Practicing with a loop pedal can allow string players to experiment with a wide variety of technical and musical goals by setting up specific loops that aid focus in that moment. Medium-sized goals using looping could include working on interlocking

various rhythmic patterns, developing a thorough chordal understanding through playing the bass line and inner voices, and using a repeating loop to practice melodic improvisation within different stylistic parameters. Looping can also help accomplish larger scope goals such as playing a jazz standard through looping the rhythm, chords, and harmonies or composing an original piece of music.

The third factor of flow, providing immediate feedback, is very important when it comes to music practice. According to jazz violinist and educator Christian Howes, recording oneself is the best and easiest way to improve one's musicianship. The immediate feedback that can be provided through a musician's listening to recordings of their own playing is most helpful when done so frequently and critically "in order to shorten the gap between what you think you sound like, and what you sound like in reality" (Howes 2011). There is a difference between the sound that is actually coming from one's instrument and the sound perceived by the player during the process of playing one's instrument. Listening to recordings can help to provide listening feedback, but the ultimate goal would be to hear one's sound critically in the moment while playing. Howes argues that the more frequently one listens to one's own playing, the more mental notes one can make through analyzing critically: ". . . I can restrain myself from playing that same tired lick, habitually sliding into notes, playing long run-ons, etc. . . . as long as I focus/remember to inhibit these bad habits and keep checking updated recordings, I'll get better" (Ibid). Howes promotes looping technology for practice, streamlining this process of hearing one's own playing very quickly. The main benefit is that feedback is immediate when live looping because string players are forced to plan and adapt what they are playing in relation to the context established by the repetition of

every recorded loop. With each layer recorded, the individual can hear and reassess with every repeating pass whether something does or does not work.

The fourth factor of flow, matching the challenge level of the activity to one's skill level, is very important. The concept of "scaffolding" has been used by school classroom teachers of all subjects to help students to not become overwhelmed by the task at hand. It involves "breaking up the learning into chunks and providing a tool, or structure, with each chunk" (Alber 2014). Scaffolding the challenge level to one's own skill level is done automatically using looping because string players are able to play and practice only to the difficulty level of their own playing. Looping exercises engage a musician's prior knowledge of technique and theory, and use that information as a starting point. The player can introduce new music concepts one at a time, which will be repeated and reinforced with the technology of the loop to help the player to develop new skills through a gradual process.

The fifth factor of flow, the intensity of focus of the individual, has the power to even alter one's sense of time; "the sense of duration of time is altered; hours pass by in minutes, and minutes can stretch out to seem like hours" (Csikszentmihalyi 2008, 48). This phenomenon can be especially relatable for musicians when practicing. Live looping is a complex process that requires intense focus by the individual. To be actively engaged, the musician must be constantly listening and adapting technically while practicing. Rhythmic timing is also very important when looping. The musician must be incredibly rhythmic, especially when recording the first layer to ensure that the rest of the layers will be able to fit properly. Adding other rhythmic components to the first loop



requires mental focus and feeling the subdivision of the beat in one's body. In addition, intonation becomes especially noticeable as more layers of playing are combined.

In conclusion, incorporating live looping into a string player's practice routine can prove to be beneficial in developing the player's listening skills alongside their technical skills. This tool can help foster an environment that encourages students to find flow in their individual practice. Looping enables students to "tap into intrinsic motivation" and make choices on their own while being able to monitor their own progress (Spencer 2020). After recording each loop, the student can reflect on how the "approach is working" and afterward delete the loop and start over in order to "adjust and assess again" (ibid). This cycle of reassessment will help address listening and "imagining" skills along with strengthening technical skills through repetition. Ultimately, live looping will help string players bridge the gap from playing music on the page to being able to be more creative in their playing. In the following chapter of this paper, examples will be provided on how live looping can be organized. Exploring different music styles with a loop pedal will be discussed as methods of expanding the skill sets of string players, preparing them to play creatively in different musical contexts.

## Chapter Four

### Exploring Participation in Non-Classical Genres

Learning to play different styles of music is an essential aspect of developing as a musician, becoming a more creative improviser, and even securing employment as a working musician in today's gig economy. Most improvisatory music involves "a relative freedom to choose elements within stylistic norms or rules proper to a given culture" (Moore 1992, 64). In the same manner as speech is used in everyday conversation, musical improvisation is "only an effective means of expression when incorporating a vocabulary, whether cognitively or intuitively understood, common to a group of individuals" (Ibid). An early understanding of different styles of music in one's musical journey provides an advantage to learning and acquiring the vernacular of any style used for improvisation in the future. Immersion and close study is required to helpfully participate in an unfamiliar style of performance:

Because of the close relationships of all musics to specific and diverse cultural modes of expressions, many authors have emphasized that a knowledge or expertise in one style of performance may not prove helpful in the acquisition of another... The substantial conceptual difficulties encountered by many performers of Western art music in attempting to learn jazz improvisation serve as one example of this phenomenon. The even greater difficulties jazz musicians would undoubtedly encounter in attempting to vocally or instrumentally improvise in Arabic *maqamat* is another. (Moore 1992, 65)

This is one of the reasons why it is daunting for classically trained string players to participate in non-classical musical settings. Not only is improvisation required, but stylistic norms are often expected. Taking lessons with a teacher, playing with other

musicians, and listening and playing with recordings can all be helpful tools to prepare string players to play with others in an unfamiliar style. Live looping can provide another tool for string players to help bridge this gap in an effective and non-intimidating way for a musician to learn new elements, grooves, and vocabularies. Looping allows individuals to gain familiarity with a smaller portion of a particular style on repeat to experiment “within the parameters of its aesthetic.” Louis Armstrong was known to solo continuously “over the changes of the same piece for half an hour at a time, constantly inventing new melodies and ways of varying his performance” (Moore 1992, 65). Looping provides a space for individuals to learn and adapt “to the aesthetic parameters of one tradition,” ultimately freeing the individual to create a style of performance that is both “communal and unique” (Moore 1992, 66). This chapter will examine fiddle and jazz as styles for string players to experiment with on their live looping setup.

Fiddle tunes have been a prominent music throughout American popular culture since Europeans first began immigrating to the country, bringing along with them music traditions from “Scotland, Ireland, and England” (King 2010, 1). One of the major characteristics of fiddle styles is the emphasis on “groove,” or the rhythmic undercurrent of music, which can be especially relevant in the traditional context of playing dance music among many fiddle styles. Scottish fiddler Alasdair Fraser, also known as “Scotland’s premier fiddle ambassador,” has taught fiddle styles in some of the “longest-running fiddle camps in the world.” Fraser focuses specifically on this aspect of groove in his performances, camps, and teaching describing groove as, “...the rhythmic grounding of music in both big picture and subdivided perspectives... as one of the most important aspects of music” (M. Perdue 2019, 13). American fiddle styles evolved based on where

immigrants from Europe chose to settle, causing regional styles to develop across the United States. Over time, regions shared tunes and ways of playing with one another creating a variety of styles that transformed into “Cajun, old-time, bluegrass, Franco-American, Western swing, and a vibrant string band tradition, all of which evolved on American soil” (Lieberman 2004, 50).

For a classically-trained string player, approaching fiddle styles involves thinking about rhythm in a completely new way. Old-time fiddler Gerry Milnes prioritizes the right hand in his teaching style to achieve “...getting the rhythm of the music into the bowing hand” (Frisch 1987, 90). Fiddling is “a highly rhythmic, group-oriented activity” (Lieberman 2004, 51). Learning the style of fiddle tunes requires hearing the melody in relation to the song’s overall rhythmic groove, whether played solo or with others. Fiddle music also involves “improvisation and spontaneous composition” embellishing the melody with rhythmic bow variations and left-hand ornaments. Fiddlers constantly play within the established groove with new rhythms to overlay the melody “accenting key parts of the dance with licks, drones, and dynamics, since dancers will use the tune to tell their place in the dance” (Hebert 2002). Immersion within the language of fiddling is key as tunes are passed to others in the aural music tradition rather than via sheet music. Jam sessions, listening to fiddlers, and access to recordings are often the main ways in which fiddlers develop an intuitive way of participating within these music styles. The aural tradition of fiddling enables the existence of more than one “correct” way to play the tune: “Fiddlers from different parts of the country play a given tune in many ways” (Duncan 1981, 5).

Fiddle tune melodies tend to be short and repeated “again and again” compared to the length of a classical melody. Many old-time tunes are built using a repetitive form such as an AABB form, with sections that last for four to eight bars (Lieberman 2004, 53). Fiddle tunes can therefore be a fun way for teachers to expose beginner students to ear training and improvisation using a loop pedal due to their built-in repetition. Fiddle tunes are often in the keys of A or D major and maintain ranges that typically stay in the first position which provides greater accessibility for beginning violinists to play these tunes at early stages of their education. Violists and cellists can play the same fiddle tunes down a fifth interval in their respective D and G major ranges.

Fiddler Tammy Rogers King uses *Boil ‘em Cabbage Down*, a traditional tune typically played in A major, as an “excellent introduction into fiddling” due to its introductory use of the shuffle bow rhythm (King 2010, 25). American fiddler Mark O’Connor uses this as the first tune in his O’Connor String Method book series and revisits the tune in subsequent books as a foundation to explore more advanced concepts of improvisation and embellishment within the fiddling idiom. Crystal Plohman Wiegman, Renata Bratt, and Bob Phillips also use this tune as a foundational aspect of their progressive fiddling method compilation. Example 4.1 shows the basic melody for the tune *Boil ‘Em Cabbage Down*.



Example 4.1. *Boil ‘Em Cabbage Down* Basic melody

Applying the shuffle bowing to a fiddle tune melody is one of the first ways to introduce students to applying rhythmic variation to a simple melody. A shuffle bowing is a foundational bowing pattern in fiddling which brings out the syncopation of beats two and four. These beats are emphasized with an accent and by using more bow. The melody can also be played on one string in one position, using an open string and three fingers. Due to the simple four-note melody of *Boil 'em Cabbage Down*, students can also begin harmonizing the tune with an open string which will help to familiarize them with employing double stops organically early on. An example of these approaches combined for violin is shown in Example 4.2.

The musical notation for Example 4.2 is presented in two systems. The first system contains measures 1 through 4, and the second system contains measures 5 through 8. The key signature is two sharps (F# and C#), and the time signature is 4/4. The right hand part features a melody with double stops and shuffle bowing, while the left hand provides a simple accompaniment. Measure numbers 5, 6, 7, and 8 are indicated below the first system.

Example 4.2. *Boil 'Em Cabbage Down* Shuffle Bow

Once confident in the melody, shuffle bowing, and usage of double stops, students can experiment with changing the notes in the left hand for melodic embellishment. To get the feeling of the rhythm into the ears and hands of the string player, the player can first loop a shuffle bow or appropriate rhythmic texture over a droning open-string double stop or the song's progression. The player can practice playing the melody over the rhythmic groove established in the loop to experiment with

“variation, beat placement, and bowing syncopations” that are “implied and change with style” of type of fiddle tradition (Hebert 2020).

String players can also try looping the melody first. Practicing *Boil’em Cabbage Down* with a loop pedal, the student can record the melody in its simplest form with a shuffle bow stroke which contains the groove of the song. This allows for the shuffle bow groove to be established along with the essential melodic content. Melodic variation can then be experimented with over the recorded portion which has the melodic and harmonic content along with the feel and groove. The student can also explore new variations on each repetition as well as rhythmic textures, harmonic embellishments, or other voices such as the bass line. All of these can be derived from first learning how to play a groove-emphasizing melody.

Depending on the student’s familiarity with improvisation, left-hand melodic embellishments could include connecting notes of the skeletal melody or melodic framework with a series of scale patterns in the key of the tune, adding neighbor tones to the skeletal melody, or experimenting with other patterns utilizing larger skips. Practicing the melody in different octaves can also help a student reimagine their fingerboard and be equipped with a greater understanding of the left-hand geography usable on their instrument. The goal is to be able to practice all of these concepts within the context of the groove and melody of the song, employing any strategy with “the creative freedom to choose the order in which he/she wishes to play them” (King 2010, 57). Another tool to help students learn and improvise over fiddle tunes by ear is the use of singing. Singing is an important aspect of learning by ear and internalizing the various components of the

melody, harmony and rhythm of new styles. According to violinist Matt Glaser in an interview about teaching alternative styles,

There's something very organic about the ability to sing, you should hear music and digest it and be able to sing it and when you sing it, you should be able to play it on your instrument . . . And that gives you this very organic musical quality, I believe, that you don't get from learning information about music . . . You should be able to sing a fiddle tune and then play that fiddle tune and play what you just sang. (M. Perdue 2019, 36).

In addition to learning the melody, one should also learn how to accompany others when playing fiddle tunes. Knowing the harmony through playing the bass notes and the chord progression are equally as important as learning the melody, especially in these styles. Due to the simplicity of their harmonic structures, fiddle tunes can help beginner students with exploring harmony for the first time while intuitively learning the functions of tonic, subdominant, and dominant-functioning chords. Beginning ear training exercises with students as early as possible using fiddle tunes can help them to become more comfortable with improvising as they progress in their studies, even if it simply involves being aware of the changing bass notes from chord to chord. Students can also learn to write a chord chart for a fiddle tune using the Nashville Number System to learn about chord qualities and functions. *The Nashville Number System* by Chas Williams is a great resource for those interested in writing or reading chord charts using this shorthand method. Playing a tune from a self-written chord chart rather than sheet music with the melody allows students to see foundational aspects of a song's harmony, bass line, and form outside of learning the melody. With live looping, string players can record the chord progression from their chart they created to serve as an accompaniment to play the tune with themselves.



For advanced classical players, learning fiddle tunes away from traditional notated sheet music while locking into the syncopated groove of a live loop will allow them to develop right hand technique simultaneously, growing in confidence in their bow hand. The ability to be melodically spontaneous while also remaining consistent with the rhythm of the bow can be developed through the process of learning and playing fiddle tunes with a prioritized attention to the groove and to bow control. Practicing with a loop pedal will force players to not get stuck on the left-hand with the need to continue subdividing mentally and physically throughout their body and into their bow hand, especially if there are smaller subdivisions recorded into the loop heard by the player on playback. Fiddle tunes allow string players to practice separating the difficulties of the priorities of the left and right hand, and not allow either to affect the other in a destructive way. The ability to be confident with the bow hand will help advanced players with the mental and technical preparation required to achieve better tone on their instruments while maintaining the overall momentum of the phrase in challenging left-hand passagework of any style.

String instruments, particularly the violin, are also essential to the origins of blues and jazz music. The violin was one of the earliest instruments involved in blues music (Lieberman 2004, 81). Blues musicians utilized techniques such as slides which were inspired by “vocal techniques from Africa” on their instruments, which eventually made their way into jazz violin playing. In the 1930s, blues music transitioned as jazz violinists emerged including “Eddie South, Juice Wilson, Joe Venuti, and, in France, Stephane Grappelli” (Lieberman 2004, 83). In the 1940s, the invention of pickups allowed

violinists to be featured with big band swing music (Ibid). As stated by Lieberman in *Alternative Strings: The New Curriculum*,

Blues and jazz are America's classical music. Originally a product of the African-American experience in America, they have evolved to become a national and international expression simultaneously influencing and being influenced by the music of the entire world... Just as Bach built his compositions from playful improvisations, jazz continuously generates informal improvisations that become crystallized into repeatable forms, thereby renewing itself and evolving. It is a living art, and one that your students should be exposed to. (Lieberman 2004, 85)

It is required of every jazz musician to have a working understanding of jazz chords, scales and modes, and the vocabulary of jazz improvisation. For string players, learning to play the blues and jazz on a loop pedal can be one of the most beneficial ways to internalize every aspect of a song. A characteristic of jazz as well as many other alternative styles is the importance of the rhythm section. As string players are often accustomed to playing the melody, it is essential to know what the rhythm section is doing in a song also. The role of an ensemble's rhythm section, “. . . which usually consists of bass, drums, and either piano or guitar or both . . . ,” is to provide the underlying stylistic, rhythmic, and harmonic support for the melody (Lieberman 1995, 60).

Since string players often spend most of their time practicing melodic playing when using the bow, there is a dangerous tendency for them to play their parts without an understanding of how to listen and play with a rhythm section when entering non-classical music settings. This is often revealed when classical string players begin playing with a rhythm section and have difficulty playing within the context of the overall groove. Accompanying oneself with a groove established on a loop pedal helps string players to have a greater understanding of how music functions in different styles,

allowing them to be more confident playing in unfamiliar contexts. Learning components outside the melody such as inner voices, chord voicings, and the bass line, can be extremely beneficial in engaging the ear in new ways. In addition, authentic participation with the music of the rhythm section will allow classical string players to move towards a new method of string playing which teaches players to “conceive of the bow arm as a rhythm instrument” (Lieberman 2004, 37). This type of practice, which incorporates considering the connections to the rhythm section, will also help to inform the player’s interpretation and execution of melodic string playing. Tracy Silverman described this phenomenon in *The Strum Bowing Method*, in which he states, “Behind nearly every melody, classical or otherwise, is an implied groove” (Silverman 2018, 152).

In jazz combo settings, the ability to cover the role of the guitar for “comping” is incredibly useful. “Comping” is the role of outlining the harmony in a rhythmic way that “provides support for a soloing band member” (MasterClass 2020). Practicing a chordal comping approach over tunes will ultimately help string students with their understanding of voice leading, guiding their ear and confidence when improvising. However, due to the nature of string instruments often practiced as single-line instruments, chords are usually approached through arpeggiation within a melodic context in classical pedagogy. It is thus rare for string players to have a need to “comp” chords in a context that “function(s) like a rhythm guitar, either in a group or solo, able to accompany a singer or collaborate as a chordal instrument like the guitar” (Silverman 2020, iii). When a string player begins playing jazz, they may look to playing with a pre-recorded backing track or metronome. Tracks will provide the groove feel necessary for practicing improvising over changes but eliminates the practice time the string player would spend dissecting and incorporating

“comping” when figuring out the accompaniment themselves on their instrument.

Looping provides the opportunity for string players to set up their own backing track efficiently when practicing the melody or improvising over the changes of a jazz tune.

The blues is a form that can be used to introduce string players to comping and improvising within the jazz idiom. Tracy Silverman uses the blues as launching point to teach classical string players to jam: “It’s so deeply rooted in our cultural ears that we don’t have to learn it, just become more aware of it” (Silverman 2020, 35). The blues is 12 bars, organized in three 4-bar phrases. Three common blues types include the following:

- Delta Blues—Robert Johnson, Howling Wolf, etc.
  - Rock Blues—Chuck Berry, Led Zeppelin, etc.
  - Jazz Blues—Charlie Parker, John Coltrane, etc.
- (Ibid)

The jazz blues “Billie’s Bounce” in the key of F utilizes a dominant tonality and can be used to develop intermediate- to advanced-level comping techniques. This jazz composition was written by Charlie Parker, a jazz saxophonist responsible for the creation of bebop, which was “an entirely new harmonic-melodic-rhythmic vocabulary that became part of the mainstream of jazz” (Reeves 1995, 116). The jazz blues has a few more chord alterations from the rock blues, such as the use of ii-V-I rather than the V-IV-I progression in the last four measures of the form. During the swing era, sevenths, ninths, and thirteenths were also added to most chords in the blues progression (Reeves 1995, 104). The bebop era altered the blues form again, introducing more harmonic variation and chord substitutions (Reeves 1995, 105).

When live looping, it can be helpful to start with the bass line. A “walking bass line” in jazz is composed of quarter notes that outline the chord progression, providing

the foundation for the “harmonic and rhythmic substance” of the music (Reid 2000, 66). Bassist Rufus Reid’s book *The Evolving Bassist* provides sequenced information on creating functional walking bass lines. At first, players can write the chord symbols on staff paper and write out their bass line utilizing only quarter notes for practice purposes. Approaches to choosing notes for a simple bass line include connecting scalar notes, chordal notes, chromatic notes, or a combination of these. The primary goal of the bass player in a rhythm section is to “keep good time with good swinging bass lines” (Reid 2000, 67). Points of emphasis to concentrate on when playing a bass line include the following:

- Consistency of tone production
- Pulse (Time feeling)
- Intonation
- Harmonic awareness
- Repertoire
- Sense of phrase and dynamics
- Assessment of your musical setting  
(Reid 2000, 66)

Recording the bass line with pizzicato as the first layer can help to establish all of the necessary accompaniment information, including the feel of the groove, while allowing the ear to internalize the harmony. In the same manner as learning and embellishing fiddle tunes by ear, one should utilize their voice to aid in learning new concepts such as hearing the bass line. It can be helpful to also sing the “bass lines so you can hear the simplicity of the blues through the various harmonic additions” (Silverman 2020, 46). Silverman’s string method book *Chord Jams: Strum Bowing Etudes Book 2* builds upon the foundation of the basics of strum bowing that are discussed in the text *The Strum Bowing Method* and at [StrumBowling.com](http://StrumBowling.com) (Silverman 2020, iii). *Chord Jams: Strum Bowing Etudes Book 2*, for cellists, contains 20 Chord Jams of various grooves in

different styles. Chord Jam 15 sequences the steps to becoming a rhythm string player for a jazz blues, written in the key of F. Example 4.3, outlined in Chord Jam 15, shows the first step of learning the bass line.

8TH NOTE SUBDIVISION  
XXXXXXXXXX

F7 B $\flat$ 7 F7 F7 B $\flat$ 7 Bdim

7 F7 D7 Gm7 C7 F D7 Gm7 C7

Example 4.3. Bass Line (Silverman 2020, 48)

Recording an optional rhythm track after establishing the bass line can replicate the feeling of a drum groove. One can create a rhythmic string line using a modern bowing technique known as “chopping.” This technique was developed in the 1970s and 1980s by fiddlers Richard Greene and Darol Anger who were “attempting to create a sound similar to the ‘chop’ that a mandolin makes in a bluegrass band...” (J. Perdue 2015, 11). This sound is created by lifting the bow off of the string and dropping the bow vertically close to the frog while moving towards the bridge. This technique creates a pitch-less effect that can be used as a percussive backbeat resembling the sound of a snare drum (ibid). String players can use this technique as well as other percussive sound effects to create the feeling of syncopation. Jazz songs in quadruple meter commonly use

a backbeat through accenting beats two and four, creating the feeling of syncopation. In the simplest form, a foundation of a walking bass line along with an emphasis on beats two and four through a rhythm layer can establish enough of the groove to solidify the style.

String players can also incorporate eighth-note swing rhythms in their rhythm track using chopping or another percussive approach to strumming or striking their instrument. This would imitate the role of the hi-hat or ride cymbal in a rhythm section. *The Chop Notation Project* is a free downloadable written work created by Casey Driessen with Oriol Saña that contains detailed information on chopping technique, exercises, and grooves for string players to learn and implement the percussive bowed string technique for modern playing. This written resource contains information on learning chopping grooves with additional subdivisions. These patterns can be used in a musician's live looping to outline the swing rhythm with an eighth-note chop. In contrast to straight eight notes, swinging the eighth-note chop rhythm in a jazz style would sound closer to a triplet feel where the first eighth note is approximately twice the length of the second eighth note.

After looping the bass line and a drum rhythm track, the string player can begin experimenting with different "comping" approaches that imitate the backing styles created by guitar players. Before recording a comping pattern, one can experiment playing with various guide tones. The string player can play a single note at a time with the bow to connect one chord to another before trying to add a second note. More than two guide tones per chord can be added using arpeggiation between chords. For learning purposes, string players should start with familiarization with the thirds and sevenths of

the various chords in progression, before exploring other extensions including ninths, thirteenthths and altered dominant notes for added tension. *Chord Jams: Strum Bowing Etudes Book 2* also contains helpful charts with “bars with chords of whole notes” (Silverman 2020, vi). These can be used as a reference for the guide tones to use when outlining the important chord tones. Example 4.4, Example 4.5, and Example 4.6 show various guide tone possibilities from Silverman’s method book.

Example 4.4 shows two staves of musical notation in 4/4 time. The first staff contains six measures of chords: F7, B<sup>b</sup>7, F7, F7, B<sup>b</sup>7, and Bdim. The second staff contains eight measures of chords: F7, D7, Gm7, C7, F, D7, Gm7, and C7. Each chord is represented by a whole note on a bass clef staff.

Example 4.4. Thirds and Sevenths Comping (Silverman 2020, 48)

Example 4.5 shows two staves of musical notation in 4/4 time. The first staff contains six measures of chords: F7, B<sup>b</sup>7, F7, F7, B<sup>b</sup>7, and Bdim. The second staff contains eight measures of chords: F7, D7, Gm7, C7, F, D7, Gm7, and C7. Each chord is represented by a whole note on a bass clef staff.

Example 4.5. Ninths and Thirteenthths Comping (Silverman 2020, 49)



Example 4.6. Altered Dominants Comping (Silverman 2020, 49)

Example 4.6. Altered Dominants Comping (Silverman 2020, 49)

The string player can play repeatedly over the bass and drum loop in playback mode to experiment with different rhythms and voicings before recording the loop and moving on. The ultimate goal of comping is to “support the harmony in an understated way, with a minimum of strategically placed chords. Most jazz comping lines should be quite sparse and rhythmically as angular and unpredictable as possible” (Silverman 2020, 46). Example 4.7 uses basic chord tones incorporating thirds and sevenths exclusively.

Example 4.7. Comping Example #1 (Based on Silverman 2020, 50)

Example 4.7. Comping Example #1 (Based on Silverman 2020, 50)

Example 4.8 shows a comping approach from Chord Jam 15 that incorporates ninths, thirteenthths and altered dominant approaches.

The image shows two staves of musical notation in bass clef, representing a comping approach. The first staff contains the following chords and rhythmic patterns: F<sup>7</sup> (quarter note), B<sup>b7</sup> (quarter note), F<sup>7</sup> (quarter note), F<sup>7</sup> (quarter note), B<sup>b7</sup> (quarter note), and B<sup>b</sup>dim (quarter note). The second staff contains: F<sup>7</sup> (quarter note), D<sup>7</sup> (quarter note), Gmi<sup>7</sup> (quarter note), C<sup>7</sup> (quarter note), F (quarter note), D<sup>7</sup> (quarter note), Gmi<sup>7</sup> (quarter note), and C<sup>7</sup> (quarter note). The notation includes stems, beams, and various accidentals (sharps, flats, naturals) to indicate the specific notes and intervals within each chord.

Example 4.8. Comping Example #2 (Silverman 2020, 50)

Experimentation must also be inspired by listening to recordings of master rhythm guitar players. While listening to recordings that feature the comping of Herb Ellis, Grant Green, and other jazz legends, one can pay attention to the feel, rhythm, and outlined guide notes within their lines (Waring 2022). This is an essential aspect to developing a musician's skills as a rhythm section player and of becoming more familiar with the vocabulary and language of comping in the jazz style. The preparatory work in this portion of one's practice routine lays foundational work for transitioning to melodic soloing through the thorough internalization of the harmony.

In conclusion, learning different styles will not only create more well-rounded musicians, but also help them to appreciate music more fully. As stated by Lieberman:

Through listening to, discussing, and playing many different styles, your students will develop an appreciation for the individual gifts offered by each genre. When you send out the message that differences enrich us as musicians and as people, and that neither homogenization nor hierarchy is the goal, you help your students recognize that we can live together with mutual respect for our differences. This, in turn, can make your students feel more recognized as individuals. (Lieberman 2004, 18)

Learning alternative styles can be especially daunting to classically trained string players, as many have been trained to fear making a mistake. Live looping provides a unique opportunity for string players to experiment with new styles of music from home and practice removing any self-judgment imposed on one's playing. Practicing styles of music that utilize improvisation and rhythm section must be reinforced with a mindset that does not fear "messing up." Rather, Lieberman suggests the following: "If it sounds good, then you're on the right track. If you don't like how it sounds, play it again and then change it" (Lieberman 2004, 47). With a loop pedal, this process is instantaneous.

## **Chapter Five**

### **A Case for Looping For Developing Composition Skills**

Composition is an aspect of musicianship that is often left unaddressed in a string player's education and interactions with music. Music composition, or the act of creating a piece of music, is listed "within the National Standards for Arts Education" and promoted by many music educators to allow students "to express themselves in a personal way that is very different from performing or listening to music" (Kaschub and Smith 2013, 149). Benefits of practicing composition include "developing musicianship skills, listening skills, an understanding of contemporary music, and an understanding of music theory" (ibid). Although composition is important to a musician's development and exercising of creativity, it is rarely addressed in private string lessons or instrumental string ensemble lesson plans. Discouraging factors for younger students may include lacking the necessary notation skills for composing a piece of music. Even advanced string players often shy away from composing a piece of music out of not knowing where to start creatively. Fortunately, these problems can be addressed with some guidance using live looping.

Live looping provides a gateway for string players of all levels to begin composition and music production using their own musical proficiencies and musical voices as building blocks. In a similar manner to how live looping helps one practice improvisation, live looping can also help one think as a composer. Improvisation and

composition are correlated activities, and live looping can be used to develop improvised ideas in a creative flow. The process can help organize one's composition in real time through its recording and overdubbing technology. In a Reverb Song Stories interview on Reverb's YouTube Channel, improviser, composer, and virtuoso banjo player Béla Fleck states: "Composing is like slow motion improvising, and improvising is like fast motion composing . . . I think an important part of all of it is you don't edit yourself while you're being creative" (Reverb 2016, 3:56). Live looping allows the musician to focus less on editing themselves in retrospect and focus more on creativity in the moment, through listening and reacting to what they record, overdub, and improvise.

Classically-trained string players can experiment using forms and techniques they have already studied as opportunities for incorporating compositional activities. For example, teachers can pair lessons on new bowing techniques with composition assignments. Students learning different bowing articulations such as "spiccato, détaché, martelé, ponticello, and sul tasto" can reinforce their learning by creating a piece that incorporates their new knowledge (Kaschub and Smith 2013, 163). The chaconne, a popular form during the seventeenth and eighteenth centuries, can provide "a particular compositional challenge perfect for including various string articulations." With live looping, the player can record a "simple ground bass" and then compose "variations over it" using the various new techniques (ibid). Such assignments allow students to learn from utilizing, listening closely, and reacting to various articulations and timbres from their instrument. Live looping aids this learning process, allowing the musician to hear immediate feedback of their ideas.

An important component of composing is listening back to a composition and revising it. Teachers and students should always attempt to get a live performance

and record it. Composing involves imagining the sounds and purposefully organizing them. Real music happens when the sounds are actually heard in real life; music is not the written notation on a piece of paper. (Kaschub and Smith 2013, 164)

String players can therefore use live looping as a tool for experimentation in the composition process or even to record and create a finished work. For example, cellist Zoë Keating uses her live looping techniques to record classical crossover albums giving her cello a “choral, multi-layered sound” (Ross 2013). Philip Sheppard is a professor at the Royal Academy of Music and is a cellist and composer who writes music for films, TV shows, and video games. In a video interview with Spitfire Audio, Sheppard performs his composition for “Kara’s Theme” from the video game *Detroit: Become Human* (2018) on his loop station to demonstrate his process for creating pieces of music with only his cello. Since he prefers writing from behind his cello, he uses a Boss loop station in the early writing stage to experiment and record new ideas layer by layer. This example demonstrates how live looping can serve as a device for experimentation during the composition process while also allowing the musician to create a finished work.

In his demonstration of “Kara’s Theme,” Sheppard’s first loop establishes a general key area of C minor and underlying rhythmic concept in 4/4 without necessarily implying any chord progression. Aside from rhythm and harmony, it is interesting to note the timbres heard in Sheppard’s loops as he begins with a motor-like ricochet bowing that utilizes chaotic string crossings. Sheppard’s next loop utilizes syncopation to accentuate eighth notes on the off beats on a C. Sheppard continues to explore timbre with this syncopation utilizing a ghostly-sounding bow stroke technique also known as *sul ponticello*. By not applying adequate pressure with his left hand, he hovers between a harmonic and real-sounding pitch. The melodic material can be represented in an

AA'BA'' form. The first A melody, lasting eight measures, is first played over the D, G, and C strings using a traditional classical tone, vibrato, and phrasing. Sheppard repeats the melody an octave higher on the A string maintaining a similar phrasing and tone. The B melody uses melodic repetition oscillating around the D, a major ninth above the C minor pedal. In the A'' phrase, Sheppard barely pushes down on the fingerboard with his left hand under his fast and wide vibrato, using a more sporadic and lighter bow stroke. Afterwards, Sheppard adds an implied harmony with a rich and warm tone in the cello's lower strings, interlocking between the repetition of other ideas (Spitfire Audio 2018, 14:16).

In summary, Sheppard was able to create new sounding soundscapes through first establishing the width and space of his repetitions using a loop pedal. After laying down a core of harmony, melodic, and rhythmic content, he could experiment with exploring different textural possibilities using fractured and untraditional sounds to develop the overall "sound picture." Through interweaving various natural and dirtier textures into a tapestry of sound, Sheppard can write and record uniquely original pieces of music from behind his cello.

The rising popularity of live looping hardware and software has enabled musicians that play traditionally single-line instruments such as the violin, viola, or cello to begin composing by looping sounds over a canvas of repetition. String players of all experience levels and backgrounds can embrace this technology to experiment, intensify, and explore the sound and impact of their own voice. The musician is ultimately in control of every input being recorded, through physical production and theoretical

organization. Technology simply aids in knitting the improvised ideas together into a composition.



## Conclusion

The importance of improvisation and musical creativity in a string player's relationship with music should not be underestimated. String teachers can help foster such skills and priorities from the beginning of string education, which will continue throughout a musician's journey and interactions with music. Whether a string player puts their instrument down eventually or decides to pursue music as a profession, years of technical string training should hopefully strengthen a musician's love for music rather than the contrary. "The love of music which originally motivated the student to choose an artistic life should never be forgotten during training and study. The love of one's art is an aspect of technique" (Adolphe 2013). Within higher levels of expertise in classical music, the number of participants becomes smaller and smaller. In comparison, many folk music fiddlers and musicians play music for life, bringing their instrument out at social gatherings, or simply for the love of playing the instrument. Lieberman states it clearly in her book: "...our choices are either to change the system or to lose future generations of musicians" (Lieberman 2004, 17).

The future of looping for classical string players is an integral component of pedagogy for practicing in a creative manner. Developing string players' ability to be creative musicians will allow them to deepen their skills and broaden areas of musicianship. Live looping will also equip string players to hear and create music in new ways, making them more employable in the changing gig economy if they decide to

pursue a career in music later in life. For the professional player in the twenty-first century, making a living as a freelancing string player can be helped tremendously through the development of non-classical skills including improvisation, reading lead sheets, playing multiple styles, and understanding how to plug-in and play in different settings (Deninzon 2017).

Ultimately, string teachers need to be the first to adopt these new teaching focuses and feel comfortable with improvisation themselves in their own playing and teaching. Students will benefit from creative approaches to music making as more and more string teachers begin utilizing live looping into their own practice and lessons. Christian Howes highly promotes the usage of a loop pedal as a tool for teachers in their lessons and classrooms. Exercises may include creating a loop for drilling melodic lines, setting up a call and response, or facilitating ensemble playing using a recorded groove (Howes 2013).

As a practice tool, live looping allows for musicians to practice over a virtually infinite number of variables and parameters, limited only by the musician's imagination and execution. Sports writer David Epstein's research in developmental training reveals that "breadth of training predicts breadth of transfer," especially in music. As individuals learn the same concept in more contexts, they will be able to create "abstract models" and rely less on "any particular example." This allows for the individual to be able to apply their knowledge into any new situation, "which is the essence of creativity" (Epstein 2021, 77). With unlimited opportunities for learning and practice, live looping can be the key for musicians to feel comfortable playing in different contexts, familiar or new. Classical string players who devote practice to developing musical skills of creativity will

be able to feel more equipped and spontaneous with other musicians as participants and contributors of the music they enjoy.

## References

- Adolphe Bruce. 2013. *The Mind's Ear: Exercises for Improving the Musical Imagination for Performers, Composers, and Listeners*. Oxford: Oxford University Press.
- Alber, Rebecca. 2014. "6 Scaffolding Strategies to Use With Your Students." *Edutopia*. January 24, 2014. Accessed November 09, 2021. <https://www.edutopia.org/blog/scaffolding-lessons-six-strategies-rebecca-alber>.
- Alexander, Michael L. 2012. "Fearless improvisation: A pilot study to analyze string students' confidence, anxiety, and attitude toward learning improvisation." *Applications of Research in Music Education* 31, no. 1 (September) : 25-33.
- Alibrio, Frances Jean. 1988. "Addressing the Problem of Attrition in the Middle School String Program by Implementing Jazz Improvisation: A Curriculum Guide to Develop Improvisational Skills with the Middle School String Musician." PhD diss., University of Massachusetts Lowell, Ann Arbor. ProQuest Dissertations & Theses A&I.
- Akutsu, Taichi. 2020. *Applying Flow Theory to Strings Education in P-12 and Community Schools: Emerging Research and Opportunities*. Hershey, PA: Information Science Reference.
- Benham, Stephen J., Mary L. Wagner, Jane Linn Aten, Judith P. Evans, Denese Odegaard, and Julie Lyonn Lieberman. 2011. *ASTA string curriculum*. Fairfax: American String Teachers Association.
- Blakeslee, Michael, ed. 1994. *National Standards for Arts Education*. Reston, VA: Music Educators National Conference.
- Britannica, T. Editors of Encyclopaedia. 2012. "improvisation." *Encyclopedia Britannica*, March 2, 2012. <https://www.britannica.com/art/improvisation-music>.
- Cahill, Greg. 2019. "Violinists Discuss the Best Ways to Capture a Pure Acoustic Sound in Studio & Onstage." *Strings Magazine*. November 4, 2019. Accessed October 29, 2021. <https://stringsmagazine.com/violinists-discuss-the-best-ways-to-capture-a-pure-acoustic-sound/>.
- Csikszentmihalyi, Mihaly. 1998. *Finding Flow: The Psychology of Engagement with Everyday Life*. New York: Basic Books.

- . 2008. *Flow: The Psychology of Optimal Experience*. New York: Harper Row
- Deninzon, Joe. 2012. “Electrifying Your Violin! Article for Making Music Magazine by Joe Deninzon.” *Joe Deninzon*. April 27, 2012. Accessed November 09, 2021. <https://joedeninzon.com/httpwww-makingmusicmag-comforteelectrify-violin-html/>.
- . 2017. “10 Tips for the 21st-Century String Player.” *Strings Magazine*. March 14, 2017. <https://stringsmagazine.com/10-tips-for-the-21st-century-string-player/>.
- Duncan, Craig. 1981. *Mel Bays Deluxe Fiddling Method*. Pacific, Missouri: Mel Bay Publications.
- Elpus, Kenneth, and Carlos R. Abril. 2011 “High School Music Ensemble Students in the United States: A Demographic Profile.” *Journal of Research in Music Education* 59, no. 2 (July) : 128–45.
- Epstein, David J. 2021. *Range: Why Generalists Triumph in a Specialized World*. New York: Riverhead Books.
- Frisch, Michael. 1987. “Notes on the Teaching and Learning of Old-Time Fiddle.” *Ethnomusicology* 31, no. 1 (January): 87. doi:10.2307/852292.
- Ginsburg, Kenneth R. 2007. “The Importance of Play in Promoting Healthy Child Development and Maintaining Strong Parent-Child Bonds.” *Pediatrics* 119, no. 1 (January): 182-191. <https://doi.org/10.1542/peds.2006-2697>.
- The Gordon Institute for Music Learning (GIML). 2021. “Audiation.” 23 Feb. 2021, <https://giml.org/mlt/audiation/>.
- Gordon, Edwin. 2007. *Learning sequences in music: Skill, content, and patterns: A music learning theory*. Chicago: GIA Publications.
- Grob, Matthias. 2003 “History & Concepts.” *Livelooping*. Accessed November 24, 2021. [http://www.livelooping.org/history\\_concepts/theory/the-birth-of-loop/](http://www.livelooping.org/history_concepts/theory/the-birth-of-loop/).
- Hebert, Donna. 2020. “12 Questions Violinists Ask About Fiddling.” *Strings Magazine*. July 01, 2020. Accessed September 28, 2021. <https://stringsmagazine.com/12-questions-violinists-ask-about-fiddling/>.
- Howes, Christian. 2011. “The #1 Way to Become a Better Musician: Record Yourself.” *Violinist.com* (blog). July 20, 2011. Accessed November 09, 2021. <https://www.violinist.com/blog/christianhowes/20117/12489/>.
- . 2013 “How to Use Loop Pedals to Practice, Perform, or Teach.” *Christian Howes* (blog). March 04, 2013. Accessed September 26, 2021.

- <https://christianhowes.com/2013/03/04/how-to-use-looping-and-loop-pedals-to-practice-perform-teach-and-improve-musicianship/>.
- Kaschub, Michele, and Janice Smith. 2013. *Composing Our Future: Preparing Music Educators to Teach Composition*. Oxford: Oxford University Press.
- . 2014. *Promising Practices in 21st Century Music Teacher Education*. New York: Oxford University Press.
- Kendall, John D. 1973. *The Suzuki violin method in American music education*. Washington DC: MENC.
- King, Tammy. 2010. "Teaching Fiddle: An Integrated Approach." Master's thesis, Belmont University.
- Lieberman, Julie Lyonn. 1995. *Improvising Violin*. New York: Huiksi Music Press.
- . 2004. *Alternative Strings: The New Curriculum*. Pompton Plains, New Jersey: Amadeus Press.
- Lynham, Alex. 2021. "The 7 Best Cheap Looper Pedals 2021: Essential Budget Loopers for Your 'board.'" *Guitarworld*. April 15, 2021. Accessed September 28, 2021. <https://www.guitarworld.com/features/best-cheap-looper-pedals>.
- Madden, Emma. 2019. "The history of the loop pedal in 7 songs." *Red Bull*. March 22, 2019. Accessed March 19, 2021. <https://www.redbull.com/us-en/history-of-loop-pedal-in-seven-songs>.
- MasterClass staff. 2020. "How to Comp When Playing Jazz Music - 2021." *MasterClass*. November 09, 2020. Accessed September 28, 2021. <https://www.masterclass.com/articles/how-to-comp-when-playing-jazz-music#quiz-0>
- Midgette, Anne. 2012. "Concerto on the Fly: Can Classical Musicians Learn to Improvise." *The Washington Post*. June 15, 2012. Accessed October 27, 2021. [https://www.washingtonpost.com/entertainment/music/concerto-on-the-fly-can-classical-musicians-learn-to-improvise/2012/06/14/gJQAH7hneV\\_story.html](https://www.washingtonpost.com/entertainment/music/concerto-on-the-fly-can-classical-musicians-learn-to-improvise/2012/06/14/gJQAH7hneV_story.html).
- Mieder, Kim. 2020. "Effective and Organized Learning Processes in Music Practice." *NAfME*. September 02, 2020. Accessed November 09, 2021. <https://nafme.org/effective-organized-learning-processes-music-practice/>.
- Moore, Robin. 1992. "The Decline of Improvisation in Western Art Music: An Interpretation of Change." *International Review of the Aesthetics and Sociology of Music* 23, no. 1 (1992): 61-84. Accessed July 21, 2021. doi:10.2307/836956.
- Mothergrid – Event Technology News & Documentations. 2018. "Ed Sheeran "Divide" Tour 2018: Sound System Design and FoH Sound for His Support Jamie Lawson." September

- 19, 2018. Demo video. 15:23.  
[https://www.youtube.com/watch?v=tjUKD4tuFMc&t=88s&ab\\_channel=mothergrid-VeranstaltungstechnikDokus&News](https://www.youtube.com/watch?v=tjUKD4tuFMc&t=88s&ab_channel=mothergrid-VeranstaltungstechnikDokus&News).
- Nadler, Danielle. 2010. "News: Spotlight - Fiddler Alert! Berklee Opens an American Roots-Music Program." *Strings (San Anselmo, Calif.)*, March 1, 2010.
- Ogrodny, Ryan Joseph. 2013. "Developing a Complete Musician: Ideas for Incorporating Alternative Styles in the Suzuki Violin Method." Master's thesis, Belmont University.
- Osborne, Luka. 2021. "Frippertronics: How Robert Fripp and Brian Eno Introduced Looping to the World." *Happy Mag*. April 22, 2021. Accessed March 19, 2021.  
<https://happymag.tv/frippertronics-how-robert-fripp-and-brian-eno-introduced-looping-to-the-world/>.
- Perdue, John C. 2015. "Is that a Cello? The Cello in Commercial Music." Master's thesis, Belmont University.
- Perdue, Meghan J. 2019. "From the Minds of the Masters: An Examination of the Significance of Non-Classical String Music Education in a Classical World." Master's thesis, Belmont University.
- Peters, Michael. 1996. "The Birth of Loop: A Short History of Looping Music." *Live Looping*. October 13, 1996. Accessed March 19, 2021.  
[http://www.livelooping.org/history\\_concepts/theory/the-birth-of-loop/](http://www.livelooping.org/history_concepts/theory/the-birth-of-loop/).
- Poole, Sam. 2021. "Guitar Sales Statistics (2021) - Most Recent Guitar Industry Data!" *Music Strive*. October 13, 2021. Accessed November 08, 2021. <https://musicstrive.com/guitar-sales-statistics/>.
- Pozzobon, Amanda. 2019. "Ed Sheeran Making & Breaking Records." *Marvel Stadium*. January 15, 2019. Accessed March 19, 2021. <https://marvelstadium.com.au/ed-sheeran-breaking-records/>.
- Reeves, Scott D. 1995. *Creative Jazz Improvisation*. 2nd ed. Upper Saddle River, New Jersey: Pearson Prentice Hall.
- Reid, Rufus. 2000. *The Evolving Bassist: A Comprehensive Method in Developing a Total Musical Concept for the Aspiring Jazz Bass Player*. Teaneck, NJ: Myriad.
- Reverb. 2016. "Béla Fleck "Big Country" | Reverb Song Stories." July 07, 2016. Interview video, 8:39. [https://www.youtube.com/watch?v=axUFRyZy\\_KQ](https://www.youtube.com/watch?v=axUFRyZy_KQ).

- Ross, Daniel. 2013. "Loops and Beats." *Classic FM*. March 08, 2013. Accessed January 05, 2022. <https://www.classicfm.com/artists/zoe-keating/guides/zoe-keating-facts/loops-beats/>.
- Sabra, D. 2015. "Improvisation: A pedagogical method for teaching greater expressivity and musicality in string playing." *American String Teacher* 65, no. 2 (May): 38–41.
- Schiele, Chuck. 2020. "Defying Dogma: Violinist Tracy Silverman Redefines What "Proper" Is." *Making Music Magazine*. November 20, 2020. Accessed November 02, 2021. <https://makingmusicmag.com/defying-dogma-violinist-tracy-silverman-redefines-what-proper-is/>.
- Silverman, Tracy. 2018. *The Strum Bowing Method: How to Groove on Strings*. Nashville, Tennessee: Silverman Musical Enterprises, LLC.
- . 2020. *Chord Jams: Strum Bowing Etudes Book 2 (Cello)*. Nashville, Tennessee: Silverman Musical Enterprises, LLC.
- Spencer, John. 2020. "Five Ways to Boost Student Engagement with Flow Theory." *John Spencer* (blog). October 29, 2020. Accessed September 28, 2021. <https://spencerauthor.com/flow-theory/>.
- Spitfire Audio. 2018. "Detroit Become Human - Kara's Theme with Philip Sheppard." October 08, 2018. Interview Video, 14:16. [https://www.youtube.com/watch?v=8Uubz\\_f1p4&t=195s&ab\\_channel=SpitfireAudio](https://www.youtube.com/watch?v=8Uubz_f1p4&t=195s&ab_channel=SpitfireAudio).
- The Strad staff. 2017. "Whatever Happened to Improvisation in Classical Music?" *The Strad*. March 13, 2017. Accessed October 27, 2021. <https://www.thestrاد.com/whatever-happened-to-improvisation-in-classical-music/6560.article>.
- Wardrobe, Katie. 2014. "A Quick Guide To The Art Of Live Looping." *Midnight Music*. June 19, 2014. Accessed November 02, 2021. <https://midnightmusic.com.au/2014/06/a-quick-guide-to-the-art-of-live-looping/>.
- Waring, Charles. 2022. "Best Jazz Guitarists of All Time: A Top 50 Countdown." *uDiscover Music*, January 18, 2022. Accessed February 04, 2022. <https://www.udiscovermusic.com/stories/best-jazz-guitarists/>.



## Works Consulted

- Alexander, Michael L. 2012. "Fearless improvisation: A pilot study to analyze string students' confidence, anxiety, and attitude toward learning improvisation." *Applications of Research in Music Education* 31, no. 1 (September) : 25-33.
- Anick, Peter. 2002. "Continuing the 'Great Conversation' with Fiddler-Philosopher Matt Glaser." *Fiddler Magazine* 9, no. 4 (Winter): 4-10.
- Bartenstein, Fred. 2019. "Bill Monroe." Bluegrass Music Hall of Fame & Museum, December 30, 2019. Accessed January 28, 2022 <https://www.bluegrasshall.org/inductees/bill-monroe/>.
- Conley, Nancy S. 2017. "The use of Improvisation in Undergraduate String Methods and Techniques Courses." PhD diss., Michigan State University, Ann Arbor. ProQuest Dissertations & Theses A&I.
- Driessen, Casey. 2019. "The Chop Notation Project (By Casey Driessen with Oriol Saña)." *Casey Driessen*. May 12, 2019, <https://www.caseydriessen.com/chop-notation-project>.
- Electric Violin Shop. 2021. "K & K Hot Spot Instrument Transducer." Accessed November 2, 2021. <https://www.electricviolinshop.com/k-k-hot-spot-instrument-transducer.html>.
- Ericsson, K. Anders. 2006. *The Cambridge Handbook of Expertise and Expert Performance*. Cambridge: Cambridge University Press.
- Galper, Hal. 2005. *Forward Motion: From Bach to Bebop: A Corrective Approach to Jazz Phrasing*. Petaluma, California: Sher Music.
- Hayden, Jess. 2011. "Darol Anger: Beyond Borders." *Sing Out!* 54, no. 3 (Summer): 47-51.
- Hickey, Maud, and Casey Schmidt. 2019. "The Effect of Professional Development on Music Teachers' Improvisation and Composition Activities." *Bulletin of the Council for Research in Music Education*, no. 222 (Fall): 27-43. <https://www.jstor.org/stable/10.5406/bulcouresmusedu.222.0027>.
- Johnson String Instrument. 2021. "Fishman V-200 Professional Violin Pickup. Accessed November 2, 2021. <https://www.johnsonstring.com/cgi-bin/music/scripts/violin-violacello-music.cgi?itemno=ELFISV200&gclid=Cj0KCQjwt->

6LBhDIARIsAIPRQcIhYLpUAK4gmPoUfSalO9x9c0LplDWjHCRSUNo0Hz4iLFwKd  
M4NN6QaAqCCEALw\_wcB.

- Lieberman, Julie Lyonn. 1999. *The Contemporary Violinist*. New York: Huiksi Music.
- O'Connor, Mark. 2009. *O'Connor Violin Method: A New American School of String Playing*. New York: Mark O'Connor Musik International.
- Pink, Daniel H. 2011. *Drive: The Surprising Truth about What Motivates Us*. New York, New York: Riverhead Books.
- PMTVUK. 2020. "Boss RC-500 Loop Station - Features, Demo & Quick Start Guide - How to use the Boss RC-500." December 31, 2020. Demo video, 15:47. <https://youtu.be/RYFEcVeXJ9k>
- Quantic Dream. 2018. *Detroit: Become Human*. Sony Interactive Entertainment. PlayStation 4. 2018.
- Reverb. 2021. "Kustom SIENNA30PRO Sienna Pro Series 30-Watt Acoustic Amplifier: The Gator Tone: Reverb." Accessed November 2, 2021. [https://reverb.com/item/12963594-kustom-sienna30pro-sienna-pro-series-30-watt-acoustic-amplifier?utm\\_campaign=US-Shop\\_unpaid&utm\\_medium=cpc&utm\\_source=google](https://reverb.com/item/12963594-kustom-sienna30pro-sienna-pro-series-30-watt-acoustic-amplifier?utm_campaign=US-Shop_unpaid&utm_medium=cpc&utm_source=google).
- Riley, Terry. *Music for the Gift*, Spotify, with Chet Baker, 2007, streaming audio.
- . *A Rainbow in Curved Air*, Spotify, 1969, streaming audio.
- Roberts, Christopher. 2010. "Play: Teaching Strings - How to Teach Improvisation to Your String Students." *Strings (San Anselmo, California)* 24, no. 6 (January): 29–30.
- Williams, Chas. 2019. *The Nashville Number System*. Nashville, Tennessee: C. Williams.
- "Why Looper Pedals Are Essential For Every Guitarist." 2021. *SWAMP Industries*. September 12, 2021. Accessed September 28, 2021. <https://www.swamp.net.au/swamp-content/articles/why-looper-pedals-are-essential-for-guitarist>.