

Tube Amplifiers: Then and Now

National Standards:

At the crest of a tidal wave of new music technology, electric guitarists have proven themselves to be a traditional bunch. Even though solid state and digital amplifier technology offers advantages that previous generations of players could only dream of, many modern players are sticking with the century-old technology of vacuum tubes to shape their sound. Playing through a quality tube amp is a borderline spiritual experience for many guitarists, and understanding the architecture of these amplifiers and their role in shaping the sound of the electric guitar is the path to understanding why they are still so popular today.

Prepare

Ask students to raise their hands if they play electric guitar. Follow up by asking what type of amplifier they play, why they chose that particular model, and if they know whether it is a tube, solid state, or modeling amp. Ask what they like or dislike about their amp and see if the presence or lack of tubes was a factor in their decision to purchase the amp. Introduce the central question of the article (Why do guitarists frequently rely on antiquated tube technology when so many newer alternatives exist?) and see what students think before reading the article.

Key points in the article:

- Tubes were crucial to many emerging technologies in the early 20th century (essentially anything that required the amplification of sound, among other applications). The more a tube amplified a sound source, the more distorted the sound became- an effect guitarists would call “saturation” or “overdrive.” The unique harmonic properties of tubes became crucial to the sound of electric guitar and deeply influenced the way guitarists played their instruments.
- Although the introduction of transistors made tubes technologically obsolete and replaced them in most appliances, guitarists were hesitant to adopt them in their amplifier circuits. Though amp manufacturers tuned their solid-state amplifiers to approximate the sound of tube amps, the differences in sound quality were undeniable. Tubes amps remained dominant.
- Major advances in digital technology have led to a new wave of modeling/profiling amplifiers that recreate the sound of classic tube amps with incredible precision. While many guitarists still prefer tube amps, the practical advantages provided by modeling amps are significant. Many professional and amateur guitarists now rely on digital amplifiers for performances and recording situations that cannot accommodate the significant volume of tube amps.

Begin

Review Vocabulary words from the article below:

- **Vacuum Tube:** small glass “bubbles” built to amplify electrical signal and create enough voltage to power a speaker
- **Obsolete:** no longer produced or used; out of date
- **Transistor:** a semiconductor device capable of amplification, used to control or regulate the flow of electronic signals
- **Modeling/Profiling:** the process of digitally analyzing the sounds produced by a source (such as a tube amp) and electronically recreating them
- **Practicality:** the quality or state of being practical; of or concerned with the actual doing or use of something rather than with theory and ideas

Discuss

After reading, split students into small groups to reflect on their impressions of the article. Do they think guitarists’ attachment to tubes is understandable, or illogical? Ask them to think of other examples of musicians using technically obsolete instruments or equipment instead of newer technology. For example, producers using vintage microphones or mixing consoles, pianists touring with full pianos instead of digital keyboards, etc. Have each group share their examples with class.

Q&A

1. What is the simplest form of the vacuum tube and when was it invented?
2. What new technology made the tube obsolete in the 1960s?
3. Which companies pioneered amp modeling/profiling technology in the early 2010s?
4. Which electronic devices (besides guitar amps) used to rely on vacuum tubes?
5. What are some disadvantages of tube amps that are not present in solid state and modeling amps?

Answers

1. Diode, 1904
2. Transistor
3. Line 6, Fractal, Kemper
4. Long-distance telephone networks, radar, sound recording and reproduction, home appliances like radio and television, early computers
5. Heavy/less portable, require more maintenance, designed to be played very loud

Expand

Offer students a choice between the following two writing assignments:

- Find two examples of professional guitarists (or even Youtube-based gear reviewers) with differing philosophies on tube/solid state/digital amps. Write a thorough summary of their personal preferences and how their amplifier choices contrast with each other. There are countless interviews with guitarists about their gear choices- finding two who disagree about digital amps should be a quick process (Premier Guitar's *Rig Rundown* series is a useful resource for this information).
- Research a non-musical example of an outdated technology that people still prefer over more modern options. For instance, driving a car with a stick shift instead of an automatic transmission, making coffee with a French press instead of a Keurig, or writing with a fountain pen instead of a ballpoint. Why do people choose this antiquated method over the convenience of their technologically-advanced alternatives? What parallels can you draw between your selected topic and the tube amp article?

Best Music Schools: Getting Started

National Standards: 7-8, 10-11

For previous generations, studying music in college was only an option for those interested in classical music (or perhaps jazz). Thankfully, this is no longer the case. For every music-related career you can imagine, there is a corresponding college music program to train the next generation. Students often find the task of narrowing their search to find one that might serve their needs to be particularly stressful. Spending a session on “going to college for music” might be instructive, but also help organize students’ thoughts about what can be a particularly fraught subject.

Prepare

Conduct a class discussion about potential career avenues in music that students may have considered. These can be anything related to the performance, composition, production, curation, or the business of music. Make a list of students’ answers. Once a list has been established, ask students to consider how one might gain the knowledge and experience necessary to pursue that line of work, and whether they had ever considered that a college program might exist specifically for that purpose.

Key points in the article:

- There are more college music programs available today than ever before, and the variety continues to expand. With greater array of majors, methodologies, school sizes, and locations, decisions become even more difficult, however by doing some research, students are likely to find options that are “best schools” for them.
- While traditional performance, education, and composition programs are still a staple of the college music world, they now exist alongside a plethora of new majors that reflect the modern world of music. Music business, popular music, songwriting, and audio engineering now make up a significant portion of higher music education. Leading music schools are constantly working to bridge the gap between music education and the professional world, offer training in entrepreneurship and other career-minded skills.
- Many cutting-edge music programs now exist at the intersection of music and other fields of study. These multidisciplinary studies involve music in the development of therapeutic practices, neuroscience, computer science, and sociology. These types of programs cater to musicians who have interests and ambitions beyond the scope of the traditional music industries.

Begin

Review vocabulary words from the article below:

- **Caveat:** a warning or proviso of specific stipulations, conditions, or limitations
- **Contemporary:** belonging to or occurring in the present
- **Entrepreneurship:** the activity of setting up a business or businesses, taking on financial risks in the hope of profit
- **Methodology:** a system of steps used in the pursuit of a study or activity
- **Prestigious:** inspiring respect and admiration; having high status

Discuss

After reading the article, ask students if they learned about any programs of study at the college level of which they were not previously aware. Conversely, see if there are any music-oriented careers they had not previously encountered and learned about through the list of available music programs. Add these careers to the list created in the “Prepare” section. Gather students’ reactions to the stated benefits of extracurricular musical activities available at many schools. How do they feel about the idea of devoting time to potentially beneficial musical experiences outside of core college curricula?

Q&A

1. What are some stated benefits of studying popular music in college?
2. What are two programs that are embracing music technology in their scoring and composition courses?
3. What are three examples of ethnic ensembles found at modern music colleges?
4. Which notable music colleges have added music journalism to their programs?
5. What is an example of a “trade school” style audio engineering program?

Answers

1. A comprehensive understanding of popular music history and culture, gaining music-making skills, preparing for music industry careers, networking with professionals, exploring music technology, studying music theory and composition, combining with other interests, and becoming a well-rounded musician
2. Peabody Institute of the Johns Hopkins University and Carnegie Mellon
3. Steel bands, gamelan ensembles, mariachi ensembles
4. Syracuse, UNT, NYU
5. The Blackbird Academy in Nashville

Expand

As an assignment, allow students to pick one of the musical careers from the list created in the Prepare/Discuss sections (it does not need to be a career the student plans to pursue, just one they

find interesting). For the selected career, choose a program listed in the article that offers a relevant course of study and conduct an online search to find two music schools *not* listed in the article that offer a similar program. Make a list of similarities and differences between the three corresponding programs for each selected career, including: geographic location, size of school, urban/rural setting, required classes for the program, faculty qualifications, requirements for admission, tuition cost, acceptance rates, and any other notable factors. Based on these factors, have students select the program they might hypothetically choose if they were to pursue their selected career and say why.

Learning New Songs: How to Play “(What’s so Funny ‘Bout) Peace, Love, and Understanding”

National Standards: 1-9

Popular protest songs are often used as historical reference points, but the best ones ring true from generation to generation. In 1978, Elvis Costello & The Attractions made their contribution to the canon with a cover of Nick Lowe’s “(What’s So Funny ‘Bout) Peace, Love, and Understanding.” Though Costello’s is still considered the definitive version of the song, it has inspired a wide array of artists to put their stamp on the tune. Due to the evergreen lyrical message and adaptability of the chords and melody, it is a musical plum ripe for the plucking for artists of any genre.

Prepare

Listen to Costello’s recording of the song and read the lyrics. Have students write down any songs they are reminded of, either by the similarity of the genre or the message of the song. Next, play excerpts of the different versions by Sheryl Crow, A Perfect Circle, Bruce Springsteen, or any other interesting versions you might know (there are many!). Have students take notes on the differences between each version and how the musical choices impact the mood of the song, as well as the meaning of the lyrics. Then, assign the article to read.

Key points in the article:

- The sound of a generation is often defined by its protest music. Whether songs focus on working conditions, civil rights, war, or any other issue of the time, songs of social justice often carry universal messages. “(What’s So Funny ‘Bout) Peace, Love, and Understanding” continues to inspire new versions, and by analyzing the key elements of the song, students can create their own version.
- At many points in the song, the bass holds a pedal tone while the guitars and piano change chords on top of it. This creates an appealing harmonic effect- the longer the bass stays on the same note, the more impact it has when it finally switches to another. The turnarounds in the verses hit particularly hard because the bass leaves the pedal tone it had previously held and begins following the root notes of each chord.
- Tempo is a key consideration for anyone covering this song. Singers need time to enunciate lyrics and clearly deliver the message of the song, but not so much time between lines that the meaning is forgotten. As with any lyric-driven song, it is important for the band to take cues from the vocalist.

Begin

Have students learn Costello’s version of the song on their individual instruments. Although it is primarily driven by guitars, there is a subtle piano part in the recording that can be emphasized. Likewise, and stringed instrument (ukulele, mandolin, etc) can strum the chords without drastically changing the sound and feel of the song. As long as a drummer or percussionist can keep a steady, driving beat and a bassist can incorporate the pedal tones at correct places, the overall effect of the original version will remain intact. If your ensemble’s vocalist(s) can't recreate Costello’s rich baritone, try changing the key to better suit their voices.

Review vocabulary words from the article below:

- **Pedal Tone:** a sustained note, typically in the bass, that is held while other harmonies move above it
- **Turnaround:** a section that ends a musical phrase and brings us back to the beginning of the next phrase
- **Industrial:** a genre of music that draws on harsh, mechanical, transgressive, or provocative sounds and themes
- **Block Chords:** a closed position chord voicing in which all notes are played at the same time and all move in the same direction (or are static)
- **Morality:** a particular system of values and principles of conduct, especially one held by a specified person or society

Discuss

After learning and playing the song as a group, students should have a solid understanding of what makes it tick. First, ask students what they think makes the song so timeless, and why so many modern artists have reinvented it. Why does the lyrical message resonate? Is there anything uniquely appealing about the melody, harmony, or structure of the song? What are the elements of the song that need to remain intact to preserve its identity? Likewise, what elements could be changed to suit the identity of another artist? What makes the song so adaptable to different styles?

Q&A

- Which American folk singer wrote songs of labor solidarity in the 1930s?
- What was the name of Nick Lowe's band who originally recorded the titular song?
- Which famous artists have covered "Peace, Love, and Understanding?"
- Which instrument plays the solo on the third verse of Costello's version of the song?
- What was the subject of many Sam Cooke and Marvin Gaye protest songs in the 1950s and 60s?

Answers

- Woody Guthrie
- Brinsley Schwarz
- Bruce Springsteen, Sheryl Crow, Wilco, Chris Cornell, Curtis Stigers, A Perfect Circle
- 12 string guitar
- Civil Rights

Expand

Have students create their own cover version of "Peace, Love, and Understanding" and perform it in class, either as one collaborative ensemble or as smaller groups. After performing, allow students to describe their inspirations and creative choices. What was their strategy for adding their own sound while preserving the song?

For a writing assignment, allow students to choose another protest song to research from the 20th century that has inspired many modern artists to cover it. Have students write a short synopsis of the song's meaning and the historical context that inspired it and list any notable covers of the song by more recent artists. For extra credit, analyze the song in a similar manner to the lesson above, taking note of the most important musical and lyrical elements and how covering artists preserved them while adding their own style.

Lea Michele

National Standards: 7-8, 10-11

Since accidentally landing her first Broadway role as a child, Lea Michele has spent her life in the spotlight on both stage and screen. The *Spring Awakening* and *Glee* actress has recently completed her lead role as Fanny Brice in the first revival of *Funny Girl*, leaving a trail of critical praise and standing ovations in her wake. With tabloid gossip and former castmates sharing less-than-flattering stories of her bossiness and self-centered behavior, Michele seems to have righted the ship and set course for a wildly successful performing career.

Prepare

Because of *Glee*'s popularity among millennials and Gen Z alike, it is likely that at least some of your class is familiar with Lea Michele and the controversy surrounding her at the outset of her role as Fanny Brice. Assess your class's awareness of the situation and gather their opinions on it (if any). Find a classroom-appropriate clip of the 1968 film *Funny Girl* to introduce the class to the story and Streisand's iconic performance. Assign the article for the class to read.

Key points in the article:

- The original 1964 Broadway production of *Funny Girl* and award-winning 1968 film both starred the legendary Barbara Streisand. Her performance in the role left big shoes to fill, and that responsibility fell on the shoulders of Beanie Feldstein, who was originally cast in the role of Fanny Brice for the show's recent revival. After mixed reviews and disappointing ticket sales, the production decided to switch gears and bring in a new lead. The director of the show, Michael Mayer, called upon Lea Michele, who he had previously cast in *Spring Awakening*, to turn things around.
- Michele was originally introduced to *Funny Girl* by Mayer while working together on *Spring Awakening*, and Streisand's performance made an immediate impact on the young actor. Her admiration for Streisand and Fanny Brice, both onscreen and in real life, has inspired her to this day. From Broadway to Hollywood, Michele has cited the two as a driving force in her ambition and professional life.
- Upon announcing that she would be joining the cast of *Funny Girl*, Michele was hit with a wave of backlash from former *Glee* co-stars and fans alike. Facing multiple allegations of bad behavior on set and abusive relationships with castmates, she found herself and the production buried beneath a growing pile of bad press. However, after a series of public apologies and overwhelmingly positive reviews of her performances, Michele seems to be back in control of the narrative and on track for even bigger things in the future.

Begin

Review Vocabulary words from the article below:

- **Serendipity**: the occurrence and development of events by chance in a happy or beneficial way
- **Counterpart**: a person or thing holding a position or performing a function that corresponds to that of another person or thing in another place

- **Allegation:** a claim or assertion that someone has done something illegal or wrong
- **Ramifications:** a consequence of an action or event, especially when complex or unwelcome
- **Prominent:** important; famous

Discuss

After reading the article, conduct a classroom discussion about Michele's career. Did anything about her story surprise them? Did they come away with any new perspectives on the actress? How do students feel she conducted herself in the wake of the bad press she received, and would they do anything differently?

Q&A

1. How many standing ovations did Michele receive on the final night of *Funny Girl*?
2. Which character did Michele play on the tv series *Glee*?
3. How old was Michele when she landed her first role on Broadway?
4. Who starred in the original production of *Funny Girl* in 1964?
5. Which director cast Michele in both *Spring Awakening* and *Funny Girl*?

Answers

1. Seven
2. Rachel Berry
3. Eight
4. Barbara Streisand
5. Michael Mayer

Expand

Have students conduct research online to find another Broadway production that changed lead actors or had a controversy surrounding the lead. What led up to the switch and media attention? Were there any parallels to the Lea Michele situation? How did the production fare?