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Practical Production Analysis: Helping Students Produce Competitive Songs

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Abstract

A common goal among music production educators is that upon completion of their studies, students will be able to produce songs that are competitive in today's market. The challenge is that we cannot begin to cover all the genres and subgenres in which students express interest. This paper introduces a simple production analysis method that not only helps students achieve the aforementioned goal, but also empowers them to modify the curriculum to fit their genre of choice. This method can also be used with students who have varying levels of skill. This paper addresses four core areas of proficiency (form, instrumentation, texture variation, and audio/production techniques), the classroom method, analysis process, and the benefits and challenges that were discovered.

Keywords: music production, songwriting, production analysis, music industry, student success

Introduction

When a song is produced solely using a computer, the producer often assumes the roles of both composer and producer, engaging both creative and technical skills. Developing a curriculum that can cover both creative and technical skill sets can be a daunting task. Quite often, music production students who have completed a large portion of an academic program still seem to struggle with producing work that could survive in the marketplace. While many production programs focus on mastery of skills and software, teaching students to translate and apply that knowledge in their genres of interest is sometimes overlooked in the curriculum. The goal of the production analysis method discussed in this paper is to help students apply their findings, producing a song that is commercially competitive in their respective genres.

Four Core Areas

In this method, students focus their analysis on four core areas: form, instrumentation, texture variation, and audio/production techniques. Developing genre-specific proficiencies in these areas is crucial in order to produce a song that can compete with others in similar marketplaces.

Form

When producing in a specific genre or format, students must be aware of the appropriate musical form for that genre. Students who want to produce pop music for the radio must realize that their songs cannot be seven minutes long. Conversely, for students who want to produce progressive rock, time is not always of importance. It is essential for producers to study the form of the genre of music with which they are trying to compete. Conventional verse and chorus structures are paramount in pop music. Capturing the attention of your listener within the first ten seconds is of equal importance. These rules are clearly laid out in the music itself, but change depending on the genre and format. Studying the form of current works in students' various genres is vital if they want to be successful producers.

Some students may be able to identify the different sections of a song easily, while some might have difficulty. In pop music constructs, verses, introductions, and "outros" can usually be easily identified. However, some students struggle with identifying a pre-chorus, and as a result sometimes have trouble distinguishing where a chorus begins. If students can identify at least the first lines of a verse and main "hook" of the chorus, they can be directed to look in between those two points to see if they can identify a smaller section that sounds different. Helping students to identify differences between the "bookends" of a verse and chorus seems to help them pinpoint the pre-chorus. The same approach can be used to locate the bridge of a song, which also sometimes proves challenging for some to detect. In order to establish the bridge, students are encouraged to look for a section that sounds different than any other section, usually located in the last quarter of the song.

When studying songs that do not fit traditional formulaic molds, students are encouraged to listen for significant changes in melodies, harmonies, instrumentation, and textures and label those sections as they see fit. In some cases where simple ternary ABA form might not even apply, labeling sections alphabetically may still be appropriate. In these atypical

situations, students are encouraged to find a labeling system that works for their own analysis purposes. For the purposes of the method described in this paper, determining if the student's analysis is "accurate" is not as important as how the student uses the analysis to assist in his or her own production.

Instrumentation

Choosing the appropriate instrumentation for a song is also of great importance. Instrumentation trends are similar to fashion trends, and are genre specific. Learning how to move and evolve with current instrumentation trends is a discipline that a producer must develop if he or she wants to be successful. Trends aside, every genre has certain staples when it comes to instrumentation. Knowing these genre hallmarks and trends for instrumentation gives students a place to start when choosing sounds for a song. The instrumentation of some genres tends to be generally stable with some exceptions. For example, Figure 1 shows an instrumentation analysis of the top ten songs in the pop genre on iTunes for September 2, 2017.

By examining the analysis, we see that electronic drums are used in all ten songs, and synth basses and synths are used in eight out of the ten. One could easily argue that the use of these three types of instruments has been stable in pop music for the past several years. While the use of guitars might not be surprising, the somewhat stable use of piano, claps, and white noise effects are noteworthy. We are currently still seeing a "marimbalike" synth trend in pop music, while a couple of years ago it would have been vocal sample-based synths. A look at the top ten songs on iTunes in the rock genre reveals a somewhat different analysis (Figure 2).

While the pop chart reflects what is currently "popular" by definition, the rock chart includes both recent releases, and some songs that are considered to be back catalog songs that have remained popular over the years. The release year has been included in this analysis in order to examine trends. By examining the rock chart, we can see that the mainstays of rock instrumentation continue to be acoustic drums, bass guitar, and electric guitar. However, it is interesting to note that releases after the year 2000 have started to incorporate elements usually found in pop music, while still sticking to the core basics. Piano is also somewhat prevalent, and electric guitars are only missing in ballads. It is important to note that some sub-genres, particularly in electronic music, have even more distinct hallmarks. A song in the EDM (electronic dance music) genre might have

	electronic	electronic sub bass synth	synth	bass				acoustic	elec	acoustic elec classical	white	-		
	drums	drums pitch drops bass guitar	bass	guitar	syntns strings piano	strings	piano	guitar	guitar	guitar	guitar guitar noise FX	claps	ciaps snaps norns	norns
Look What You Made Me Do														
(Taylor Swift)														
Despacito (Luis Fonsi & Daddy														
Yankee ft. Justin Bieber)														
What Lovers Do (Maroon 5 ft.														
SZA)														
Sorry Not Sorry (Demi Levato)														
Strip That Down (Liam Payne														
ft. Quavo)														
Slow Hands (Niall Horan)														
\ \+\.\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \														
Attention (Channe Putin)														
What About Us (P!nk)														
There's Nothing Holding Me														
Back (Shawn Mendes)														
Praying (Kesha)														

Figure 1. Instrumentation for iTunes top ten for September 2, 2017, pop genre.

	acoustic	acoustic electronic drums		electric acoustic	acoustic	svnth	synth organ piano strings claps	piano	strings	claps	white
	drums	or loops	guitar	guitar guitar	guitar	,	0		9	1	noise FX
Rx (Theory of a Deadman) 2017											
The Sound of Silence (Disturbed) 2015											
The Thunder Rolls (All That Remains) 2017											
Picture (ft. Sheryl Crow) 2001											
Bohemian Rhapsody (Queen) 1975											
Thunderstruck (AC/DC) 1990											
Don't Stop Believin' (Journey) 1981											
I Want To Know What Love Is (Foreigner) 1984											
Back In Black (AC/DC) 1980											
The Chain (Fleetwood Mac) 1977											

Figure 2. Instrumentation for iTunes top ten for September 2, 2017, rock genre.

multiple layers of synths, forcing the analyst to categorize by type or tone. Learning to study these varying trademarks and trends is a valuable practice that will give students a frame of reference when choosing instrumentation for their songs.

Texture Variation

Very often when an inexperienced student producer plays one of his or her songs, it is as if the song is a large mass of unformed clay, without intentional shape. The student often uses every single instrument quickly without reserving any voices for a later introduction. Learning how to vary instrumental textures and sculpt songs is an important skill to develop as a producer. After listening and studying competitive songs, one can understand the effectiveness of certain texture variations, such as delaying a bass line entrance, or stripping down instruments after a thick introduction. Figure 3 shows the intentional texture variation of the Taylor Swift song "Bad Blood."

The above analysis is an example of texture variation, structured in an intentional way that gradually builds to the end. Chorus.1 is always stripped down until the end of the song. The verses and pre-choruses are never the same twice, with new elements being brought in to avoid exact repetition. Layers are also gradually added to Chorus.2 every time it is repeated. The last chorus block is the "thickest" part of the song. The song ends the way it starts, with just the main drum loop. This analysis indicates a methodical layering of textures to avoid stagnation, and to build to a climax. Figure 4 shows a different method of texture variation in the song "Hotline Bling" by Drake.

In Drake's songs, textures are more block-like with intentional breaks. In "Hotline Bling," choruses are stripped down. The bridge is hollowed out, introducing a completely new set of instruments. The song begins and ends in a minimalistic fashion. By studying texture variation, students can see that it is not enough to simply decide which instruments to use; one also has to decide when to use them. That decision can ultimately help carry the emotional arc of the song, no matter the trajectory.

Audio/Production Techniques

In addition to composing and producing their songs, many students are mixing their own productions. That means it is crucial for them to understand how to work with frequencies, dynamics, and amplitude. If

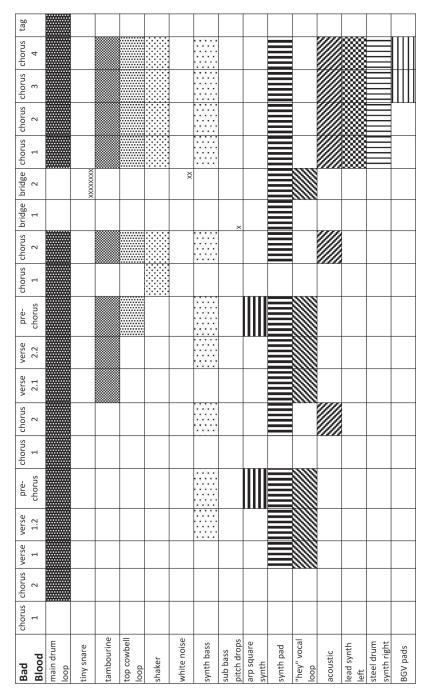


Figure 3. "Bad Blood" by Taylor Swift.

Hotline Bling	intro	chorus	verse 1	chorus A	chorus	verse 2	chorus A	chorus	bridge	chorus A	chorus	instrumental A	choruschorusverse 1choruschoruschoruschoruschoruschorusinstrumentalinstrumentalABABABAB	notes
perc loop														tiny aux perc (congas)
kick														slight saturation
hats														trap hats
snare														tiny trap snare
dist sub bass														saturation
organ													stabs, verb,	stabs, verb, B3ish
synth glue														pad underneath
piano														high accents, verb
bass 2														long sustained
vocal phasey synth														phase, filtered
snaps														verb, dark

Figure 4. "Hotline Bling" by Drake.

students do not understand these mixing competencies, it becomes quickly apparent when comparing their work to the marketplace. If a song cannot hold its own sonically against another, then it will have a hard time competing. In addition to audio and mixing techniques, there are creative production techniques as well that are important to learn. These creative techniques are also subject to genre trademarks and trends, and can include everything from knowing how to use effects, to clever uses of compression. For example, the current trend in rap and hip-hop is to use distorted sub-basses. Seen in Figure 5, eight out of ten songs on iTunes' top ten hip-hop/rap chart all have distorted sub-basses. These songs are indicated in bold.

Chart Position	Title
1	1-800-273-8255 (Logic ft. Alessia Cara)
2	Bodak Yellow (Cardi B)
3	Congratulations (Post Malone ft. Quavo)
4	Wild Thoughts (DJ Khaled ft. Rihanna)
5	Bank Account (21 Savage)
6	Rake It Up (Yo Gotti ft. Nicki Minaj)
7	Unforgettable (French Montana ft. Swae Lee)
8	HUMBLE. (Kendrick Lamar)
9	DNA (Kendrick Lamar)
10	XO TOUR Llif3 (Lil Uzi Vert)

Figure 5. iTunes top ten hip-hop rap chart on September 2, 2017. Bold type indicates use of distorted sub-basses.

Another example of a current production technique specific to a certain genre is the use of low-pass filters on vocals in pop music. This effect cuts out high frequencies, giving the vocal a muffled sound. Seen below in Figure 6, five out of ten songs on iTunes' top ten pop chart all have low-pass filtered vocals. These songs are indicated in bold. Since creative production techniques seem to trend for sometimes a year or more, it is important for producers to stay informed of changes to their corresponding genres.

Chart Position	Title
1	Look What You Made Me Do (Taylor Swift)
2	Despacito (Luis Fonsi & Daddy Yankee ft. Justin Bieber)
3	What Lovers Do (Maroon 5 ft. SZA)
4	Sorry Not Sorry (Demi Levato)
5	Strip That Down (Liam Payne ft. Quavo)
6	Slow Hands (Niall Horan)
7	Attention (Charlie Puth)
8	What About Us (P!nk)
9	There's Nothing Holding Me Back (Shawn Mendes)
10	Praying (Kesha)

Figure 6. iTunes top ten for September 2, 2017, pop genre. Bold type indicates low-pass filters on vocals.

Methodology

In Austin Kleon's book *Steal Like an Artist*, he encourages artists to study other great artists with the intention of allowing that study to influence their work (Kleon 2012, 52). The method set forth in this paper was created with this idea in mind, directing students to study work by an artist deemed "successful" with the intention of emulating that work. For this method, we define a "successful" song as something that has either sold a large number of copies, or has had a large number of plays. The method of analysis presented in this paper was developed so that it could be incorporated into an existing course. Ideally, this method would be expanded to include the study of more than one artist in a production analysis course.

First, each student picks an artist he or she wants to emulate. The selected artist must have a song that has charted on either *Billboard* or *Beatport*. After students have chosen their artists, they choose three successful songs by that artist. Students are instructed to choose songs from the same album or era if possible. The student then analyzes the three songs using a demonstrated method, with the intention of producing an original song influenced directly by the analysis. The goal is to produce something commercially competitive, using the selected songs as the barometer.

Musical analysis often takes the form of a text document. Findings are discussed in a paper, often along with examples stated in the form of

a musical score excerpt. For this particular method, students incorporate visuals as a representation of the analysis, similar to the examples used in Figures 1 through 4. In a study conducted by Richard Mayer, adding visuals to words improved learning by 23% (Mayer 2001). By utilizing a method that is more visual, students are more easily able to see patterns and commonalities when comparing songs. An example of this visual analysis is provided for students to use as a guide (Figure 7). For the purposes of this publication, grayscale patterns are used.

First, each student listens to a song and writes out the form along the top columns of a spreadsheet. Completing this task first is important, because it will provide structure and an outline for the visual analysis. Keep in mind that students will repeat the process for each of the three songs. After comparing the form of each song, patterns and commonalities should emerge. For example, a student who has never created a bridge for a song might find that the selected artist uses them consistently, and be prompted to make that change in his or her own songs. Or a student might find that the artist consistently has a breakdown section before the last chorus, and that might be something he or she has overlooked in their personal productions. Again, the hope is that students will see intentional patterns in the form and attempt to apply those same patterns in their own songs.

After writing out the form, students list every instrument used in as detailed a manner as possible. This requires some critical listening. Even if students are unable to identify the instrument, they should at least try to describe the sound. Students are instructed to be specific beyond general groups. For example, instead of just listing "drums," students are encouraged to list the individual pieces of the drum kit. This becomes challenging when dealing with songs that may have several different types of synths or effect elements. Students are encouraged to devise their own descriptive words for each sound, which helps when they later must create that sound. Challenging the students to be as comprehensive as possible with the instrumentation list will allow them to have a more detailed look at texture variation next.

After finishing the instrumentation list, students use the spreadsheet color-fill process to fill in each cell in which the instrument is present, using the form of the song listed above. A different color is assigned to each instrument. For example, the kick might only be present in the choruses, so we would fill only the chorus cells on the "kick" row. This might require several listens, depending on how many instruments are listed. Some

Issues	intro	verse 1	pre- chorus	chorus verse	pre-	chorus	bridge	chorus bridge chorus outro	outro	tag	notes
pizzicato strings											more dry, more like close mic-ed. slight delay
kick/sub bass											saturated
gang pizz strings											super wet reverb, more like whole section
snaps											small amount of reverb, more at 2nd chorus
cello											lows cut
gtr harmonic- like accent											distorted, some delay/verb
cymbal											big, clean, roomy wash
chimes											orchestral, in background
lead vocal											delay
BGV "ha"							********				reverb
BGV w/lyric						adaaa.					harmony split

Figure 7. "Issues" by Julia Michaels.

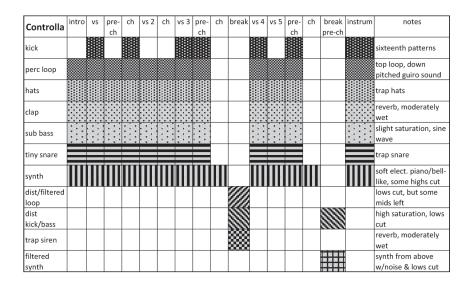
students may be capable of focusing on only one instrument at a time. After the appropriate cells are filled, we are left with a vivid representation of the variation of textures in the song. Students can see how the composition is sculpted and developed. Students who are interested are encouraged to analyze the texture of one of their own songs as well and compare it to their artist's song. For many students, it is a rude awakening of sorts when they can "see" that their song is simply a large block of sound compared to the work of the artist they have studied.

Finally, students make detailed audio/production notes next to each instrument. The notes will be extremely helpful when trying to emulate sounds in production later on. These notes could include details regarding delay, reverb, filtering techniques, or other effects. Students are encouraged to be as descriptive as possible with these notes. Some students may be able to describe effects with technical accuracy, while some may not. For example, one student might be able to describe a vocal effect as having a "low pass filter applied, cutting highs around 400Hz," where another student might only be able to describe the effect as "underwater."

After analyzing all three songs, each on a separate spreadsheet, students take screen snapshots of each sheet and then arrange all three on one screen. The alternative would be to print out all three in color. Now students can compare and contrast all three songs, looking for commonalties and patterns. Students are encouraged to search for things that might be considered "signature" techniques for that artist. This is where the visual becomes helpful (see Figure 8). When students can "see" that all three songs have a breakdown that always introduces new instruments, they become motivated to try the same technique. When they can "see" cascading instruments gradually being introduced consistently in all three songs, they realize they should pay more attention to how they introduce new voices in their own songs.

After comparing all three songs, students make a list of any commonalities they find. Then students develop a list of things they are going to try in their own productions as a result of their analysis. For example, after completing the Drake analysis, one might be persuaded to try the following:

- Hip-hop kits, slightly saturated kick drums, trap hats and tiny snares
- Distorted sub bass



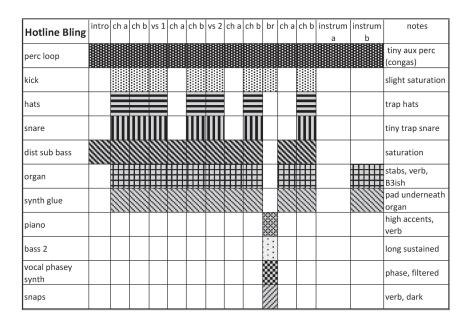


Figure 8. A comparison of "Controlla," "Hotline Bling," and "One Dance" by Drake.

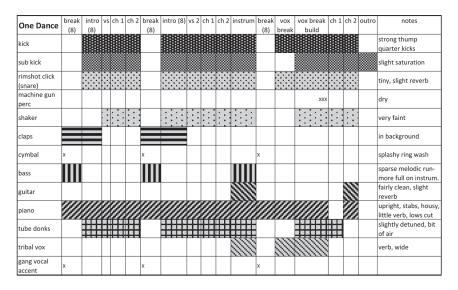


Figure 8. A comparison of "Controlla," "Hotline Bling," and "One Dance" by Drake (cont.).

- Organ or piano has constant riff
- Filtered synths
- Hollowed out choruses and breaks
- Tribal vox/perc loop/distorted and filtered breakdown
- Full instrumentals

Each student then produces a song. Subsequently, each student presents research findings to the class, playing excerpts of the songs he or she studied, concluding with the presentation of his or her own song. This creates a bit of positive peer pressure for students, knowing their works will be compared to the excerpts they play.

The Benefits

One of the benefits of using this method is that a wide variety of genres can be covered without the instructor having to bear the weight of the work. The students' presentations cover the details of their research, and as a byproduct, students learn characteristics and trends of certain genres. A second benefit from this method is that the curriculum is now tailored to the individual student's goals and interests. Students are more

motivated to study music they enjoy. By allowing them to analyze music of their choosing, students are often driven by the opportunity to figure out what could potentially be of great help to their success.

A third benefit from utilizing this method is that it can be used by students of varying levels of competence. Students often have contrasting capabilities when it comes to analysis. One student might be able to pick apart every single percussive element in a song, while another student might be able to pick out only the basics. One student might be able to hear the exact timing of a digital delay, while another might be able to hear only that delay is being used. This analysis method allows students to respond with varying levels of detail in their analysis, depending on their capabilities.

The Challenges

One of the challenges of using this method is deciding how to grade the analysis. Listening to each song the student analyzed and checking to see if the analysis is accurate takes an investment of time. A suggested solution would be to invest time in the first assignment, listening to the first song and going through their analysis in detail, as opposed to listening to all three. From that first analysis, the instructor can usually determine the student's level of comprehension and determine a baseline for depth and detail. When the second and third song analyses are submitted, the instructor can generally look over them with the student's baseline in mind, making sure the analysis is consistent with the bar already set. Grading in this manner also creates more time to review the work of the student who might be struggling with a certain area of analysis. In this particular situation, grading students based on individual capabilities is appropriate.

Another challenge is that some students persist in trying to copy the artist exactly. We must constantly remind the students that we are merely trying to emulate certain traits of the work and not trying to replicate the work. The goal is to learn from the artist and apply that knowledge to produce work of a similar quality, not to copy the artist. We must also remind the students that we are not suggesting success can be easily achieved by trying to boil an artist down to a simple formula. We simply want to try and give the student a jumping-off point that leads in the right direction.

A third challenge is motivating creatives who do not like to work within parameters. Many students who are computer-based producers tend to do little planning. If the entire studio and workflow consists of just the

student and a computer, the temptation is to sit down and simply start creating, going with the ebb and flow of creativity to see where it leads. Getting students to consciously aim for certain parameters, goals, and techniques while in the creative zone is a concept that isn't always well received by students. Showing them the value of working within some boundaries, with a goal of success in mind, has the potential to change their workflow to reflect more professional practices, yielding more competitive results.

Directions for Future Research

Aside from feedback which indicates that students seem to be motivated by the process, the effectiveness of this method lacks verification by empirical data. While positive change can be observed when comparing students' work to the artists they've chosen to emulate, there is no way to ultimately determine how successfully competitive the work can be without observing the song's survival in a real marketplace. Presently, evaluation includes a focus on the items that the student attempted to emulate and comparing those items to the artist's recording. This more objective evaluation attempts to keep the goals of the assignment in mind, measuring what is quantifiable. An alternative assessment method would be to have students analyze their final productions in the same manner in which they analyzed their artists, and then comparing their work on paper.

Students who embraced this method and presented detailed analyses, indicating strong critical listening skills, subsequently produced songs that are more commercially competitive. Students who provided less-detailed analyses produced results that could be considered less competitive. Further research would investigate the reason for this outcome by posing the following questions: were students successful at producing a competitive song because they had excellent critical listening skills, plus the technical skills required to achieve the emulation? Furthermore, if a student is lacking in critical listening skills, yet has the required technical skills, is he or she at a disadvantage? One could argue that being a successful producer requires both excellent critical listening expertise, plus technical proficiency. This argument poses further questions: what systems do we have in place to help students who struggle with critical listening skills? Can a student who has difficulty with critical listening still be a successful producer? How much of critical listening is based in natural ability, and how much of it can be taught, considering that some recordings require critical listening at an advanced level? Further research would examine these queries.

Conclusion

By allowing students to study great artists within a chosen genre, students develop a personally-tailored, motivating curriculum, which inspires them to apply new skills, thus providing growth as a producer. The other "win" is changing the student mindset, helping each one to understand that with some study and discipline, creative goals are attainable. By helping our students work within parameters, we give them healthy limitations that hopefully contribute to helping them achieve their desired career goals. When employing a new method, the instructor must determine what the "win" will be. Ultimately, if a student's song sounds closer to being commercially competitive after this process, if even slightly, that is a win. We cannot have every single student ready for the market within one semester. However, if we can get their songs one step closer to being able to carry their weight in commercial markets, that is a success.

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MEIEA Journal

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