Tampere University of Applied Sciences

From Concept to Completion: How to Make a Pop-Punk Album with a DIY Approach

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ABSTRACT

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RICHARD JORDÁN YOUNG:
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The sole focus of this thesis is documenting the creation of the EP “For Better or For Worse” by the Spanish band “Dstant”. The author acted in the roles of composer, producer, recording and mixing engineer. The sonic goal was to create an EP, which combines sounds from the old and modern eras of pop punk.

The thesis commences with the introduction of the band. Next, an introduction to pop punk by covering the different milestones of the history of the genre is presented. After this, the thesis further examines the creative processes of making an album. Based on the data from the academic literature of the field, a guide was developed that encompasses the process of music making. This thesis includes stages such as music creation and composition, the science behind recordings, editing files, and achieving professional sounding songs while mixing. The final part consists of a discussion where the challenges and solutions of the project are exposed, and explains the experiences and skills acquired.

Key Words: pop-punk, production, recording, mixing

CONTENTS

ABBREVIATIONS AND TERMS

AD/DA	Analog to Digital/Digital to Analog
Amp Simulator	A digital emulation of an amplifier
Aux Track	An audio track to process and blend in parallel with an original track
Batter head	The drumhead that is on the top side of a drum, the one that is struck by the sticks
Bus	A part of a systematic workflow where multiple audio tracks are routed to for processing as a group
Comping	Process of combining multiple recorded takes into a single performance
DAW	Digital Audio Workstation
dB	Short for Decibel, a unit of measure of sound level
DI	Direct Input
Drum Rim	The metal or wooden ring found on a drum that helps provide tension to the head
Dynamic Range	Difference between the quietest and loudest part of a sound
EQ	Short for Equalization, process in which the frequency content of a sound is modified
EP	Extended Play, a musical recording that contains more tracks than a single but less than an album
FetHead	External preamp that provides a signal with 27 dB of clean gain
Gate	Officially named a “noise gate”. Utilized for an isolation technique that allows audio to be heard only when its level has exceeded a previously set threshold
Hz	Hertz, unit of frequency equivalent to one cycle
Interface	A device that connects to a computer and allows the input and output of audio signal for recording and monitoring

IR	Impulse Response
ITB	In the box. Term that defines the process of working exclusively in a DAW
KHz	KiloHertz, unit of frequency equivalent to 1000 cycles
Local I/O	Local Inputs/Outputs, the connections of a device that are directly integrated into its chassis
MIDI	Musical Instrument Digital Interface
Mixing	Process of combining a multitrack recording in a musical way to achieve a pleasant result
Monitoring	Process that allows a player to hear what is being recorded in real time
Noise Floor	Level of unwanted noise present in a recording
Panning	Process of positioning a sound in the stereo field
Phase	The position of a sound wave within its full cycle at a specific point in time
Plugin	A piece of software inside a digital workstation that allows the user to process audio
Polarity	The positive or negative direction of a wave form
Preamplification	Process of amplifying a weak electrical signal to a usable level for further processing
Quantization	Process of timing notes to the grid of a DAW in order to correct performance irregularities
RIAA	Recording Industry Association of America
Signal Flow	The path audio follows from the source until the output
Stereo field	The available space from left to right in a musical arrangement or mix
VCVCB	A specific type of musical arrangement that stands for “Verse-Chorus-Verse-Chorus-Bridge”

1 INTRODUCTION

Dstant is a Spanish band from Lanzarote, Canary Islands. It is conformed by 3 guitarists that have played together in multiple bands for almost 15 years. The idea to form Dstant came from the desire to combine the genres that have moved the band members throughout their musical journey: Punk, Pop-Punk, Metalcore, pop and rock. The band was formed in November of 2023 and can so far be considered a studio band since this is their first work together.

All this resulted in the creation of “For Better or For Worse”, a Pop-Punk EP that guides the listener through the various experiences of personal struggles and loss. The EP combines heavy and energetic instrumentals with deep, catchy and meaningful lyrics that hit hard. My role in this creation was to write, produce, record, and mix the EP itself. This proved to be a very fruitful experience since it allowed me to experiment with freedom and pushed me into positions, I had never had the chance to enjoy, when the time came to create the EP.

Although I have 14 years of experience in producing, recording and mixing, this was my first personal work with other band members. In this thesis I will speak about the steps that were taken to create “For Better or For Worse”. These will include pre-production, the process of choosing the gear and techniques used to record, the editing aspect of making a song, the importance of mixing in music and modern-day production techniques.

2 POP PUNK HISTORY

Pop Punk is a punk sub-genre that combines the upbeat energetic rhythms, aggressive chord progressions and rebellious lyrics that express discontent or emotional angst from punk rock; and the catchy melodies with the radio friendly structures from the pop genre. Its origin is attributed to bands such as The Ramones, The Undertones and The Buzzcocks from the late 1970´s. In an article about pop punk, the Rolling Stone Magazine labeled pop punks bands as bands that “always championed great songwriting alongside their anti-authoritarian stance. And punk's focus on speed, concision and three-chord simplicity is a natural fit with pop's core values" (Rolling Stone, 2015, 46 - 50). In the AltPress article “What pop punk means to me” (Reid, n.d.) the author defines pop punk as “a genre that originates from mixing punk rock with pop sensibility”.

Reaching the 90´s decade an underground expansion catapulted the pop punk genre to a mainstream explosion with the blueprints laid out by bands like Bad Religion and The Descendants during the 80´s. A groundbreaking moment for the genre came with the release of “Dookie” by Green Day in February of 1994. An album that sold four million copies by the end of that year, became Diamond Certified in 1999 by the RIAA and “allowed numerous similar artists to enjoy long careers, including Rancid, New Found Glory, Fall Out Boy, Panic! At The Disco, Blink-182, Simple Plan & Yellowcard” (Romano, 2017).

The genre managed a continuous mainstream success with the release of “Enema of the State” by Blink 182 in 1999 and “All Killer No Filler” by Sum 41 in 2001, reaching a 5x Platinum for the American band and 3x Platinum by the Canadian band. Bands like New Found Glory, Avril Lavigne, Fall Out Boy and Paramore would later follow their footsteps into success allowing Pop Punk to maintain popularity throughout the following years. “The sound of second wave bands is marked by a radio-friendly sheen to their music, but it still maintains much of the speed and attitude of classic punk rock” (Lamb, n.d).

With the rise of other genres such as hip hop, pop punk lost its mainstream popularity in the early 2010´s. Luckily, it did not take long until bands like The Wonder Years, State Champs, Neck Deep, Real Friends, Knuckle Puck and The Story So Far “Darker and more mature than previous generations” (Beech, 2016). helped revive the underground movement from 2012 to 2016.

Finally, the long-awaited resurgence of mainstream popularity came with the debut at number 1 of the Billboard charts of Machine Gun Kelly’s “Tickets to My Downfall” album. His fifth studio album and first one to be entirely pop punk.

3 PRE-PRODUCTION

The phase of preparation done before entering a recording studio is called pre-production. Pre-production can include such things as demoing songs in your home studio, creating scratch tracks to record with, building click-tracks, building mock-ups of song parts and sequences with MIDI virtual instruments, and any other nuts-and-bolts items like dialing-in and rehearsing with precise tempos, tones, and textures (Evermore Sound, n.d).

The pre-production of “For Better or For Worse” was not a continuous process. Since the band was formed in 2023 and with me being considered the main composer, most of the songs were written throughout the end of 2023 until the beginning of 2025. While some of the songs were solely composed by me and others were online collaborations with the band, I am glad I also got a chance to work on some of the songs in person with my band mates during my stay in Spain during 2025.

Before all this happened, I made sure all our visions aligned by crafting a playlist of musical references that resembled the kind of EP we wanted to make. This helped guide us during the composition process and also made us decide on the kind of sound we were after. We were looking to create a compilation of songs that combined the energy of bands like Blink-182, with the heavy and polished sound of more modern pop punk bands like A Day to Remember and Neck Deep.

Once the demo tracks were completed, I allowed some time to pass to clear our heads from the creative process before I arranged another listening session. This time, the session focused on the arrangement, tempo, and keys of the songs. Especially the ones I had composed myself. My band mates really liked the kind of arrangements I had made, resembling a classic Pop VCVCB structure and not much was done to them since I had put in the effort to not make them excessively repetitive. Tempo wise, the songs did not change at all since we thought the energy and speed we were after during composition were ideal. So far, everything we had done was something we enjoyed listening to. That was until I tried to lower the tuning of

most songs. We fell in love with the “Heaviness” we achieved by lowering the songs 1 full tone. This got us closer to the kind of result we were after.

One of the challenges we face as a band is that we are 3 guitarists. I compose my songs using MIDI drums, which means having to get in touch with session musicians to record drums. Luckily, we know a few and had already one in mind. A meeting was held with him to see if he was willing to play in our record, with the fortune for us that he said yes. I sent him the songs along with the MIDI Files for him to listen to, give us any constructive feedback and learn the parts by heart before hitting the recording process. Another challenge I faced during the making of “For Better or for Worse” was that I didn’t have the space nor the equipment to record drums. One of the limitations of living on a small island is the lack of commercial recording studios. I solved this problem by having the drum recording session in the drummer's rehearsal place. During this period, I was working as a live sound engineer for a company, which allowed me to borrow the necessary equipment to record the drums. Another important step was taken when the guitars and bass that were going to be used for the final recordings were adjusted by a luthier. This optimized their playability and sound quality for the recording process and proved to be a great learning experience for me too. With all the demos and scratch takes done, backline and musicians prepared and me in the right mindset, the recording process started.

4 THE RECORDING PROCESS

4.1 Drums

A drum kit is a multi-piece musical instrument comprised of various percussion instruments, primarily drums and cymbals (Masterclass, 2021). The typical drum kit consists of a kick drum, snare, a couple of tom-toms, a hi-hat and a couple of cymbals (Robjohns, 2003). According to recording engineer Bobby Owsinski (2017, p.131), the drum kit usually gets the most attention in most sessions because just about all modern music is rhythm-oriented and highly dependent upon the drums for songs pulse. Utilizing microphones on each part of the drum kit has become a standard recording technique in modern day music but something must not be forgotten, drums have to sound great by themselves first in order to sound great when recorded, and that a great drummer is a big part of the equation (Owsinski 2017, p.131).

The date set for recording was the 18th of March. The day before that, I met the drummer to tune the drums and listen to the songs while he played them. I already had in mind that the kind of sound I was after was of the in your face, punchy modern sound and this listening session helped me fine tune them as close as possible to achieve that result. The drummer had changed the batter heads of his drum shells a few weeks before and they did not have much usage, so we used those for the recording. To tune the drums, I used a device called a Tune-Bot. Tune-Bot is a tuner with a microphone that clips to the drum rim and precisely measures frequencies. It can also filter frequencies to make tuning easier. The ingenious on-board software helps you get consistent tuning across all tuning rods (Merlin, 2019). What I noticed after tuning the drums to certain notes is that the drum shells became a lot punchier and more controlled, thus helping them cut through the very thick cymbals the drummer was playing. The Tune-Bot App helped me with deciding the exact tuning for each drum shell (Table 1).

Drum Head	Size	Head Brand	Fundamental	Lug frequency
Kick Batter Head	22” x 18”	Evans Level 360	41 Hz - E (1st Octave)	66 Hz
Kick Resonant Head	22” x 18”	Evans EQ 1		76 Hz
Snare Batter Head	14” x 6´5”	Remo Ambassador Renaissance	196 Hz - G (3rd Octave)	266 Hz
Snare Resonant Head	14” x 6´5”	Remo Ambassador Clear		398 Hz
Rack Tom Batter Head	13” x 12”	Evans Hydraulic	110 Hz - A (2nd Octave)	165 Hz
Rack Tom Resonant Head	13” x 12”	Remo Ambassador Clear	Medium Resonance	217 Hz
Floor Tom Batter Head	16” x 18”	Evans Hydraulic	73 Hz- D (2nd Octave)	110 Hz
Floor Tom Resonant Head	16” x 18”	Yamaha Batter	Medium Resonance	145 Hz

Table 1. Drum Tuning of each head of the drum shells used for recording (Jordan Young 2025)

On the day of the recording, I revisited each drum shell to make sure the tuning was still where it needed to be, and the recording began. Since pop punk is a very energetic and drum focused genre, it was important for me to capture as much detail and transient information from each part of the drum as possible. This is the reason why I used 11 microphones to capture the recording. Each shell and almost every cymbal had their own microphone.

Picture 1. Drum microphone setup (Jordan Young 2025)

All these microphones then connected to the local I/O of a Behringer X32 Compact Digital Console for preamplification and AD/DA conversion into Logic Pro X. No outboard gear was available at the time and the processing on board of the X32 was not something I was looking to committing onto the recording, so all the signals were recorded raw.

4.1.1 Kick

According to sound engineer Bobby Owsinski (2017, 140), the kick drum provides the pulse of the song, and through the years has gained more and more importance in the final mix. With the kick providing a lot of energy and rhythm to modern day productions it was important to capture a good sound. The premeditated sound to achieve was a punchy kick that combined enough low end that transmitted the energy I was after and the right amount of “snap” that would help the kick cut through

other instruments during the mixing stage. After listening to the kick drum by itself I wanted to reduce the amount of sustain it had. This was due to the fast and upbeat tempo pop punk tends to carry and the need to have a tight kick sound that would not muddy up the mix. I reached for a wool blanket I had brought for dampening purposes, and I placed it inside the kick drum. I made sure the blanket was not touching the batter head to avoid reducing any smack coming from the kick pedal, instead I placed it touching the resonant head to minimize the amount of resonance produced inside the drum. As a personal note, I would recommend doing this during the tuning stage so you can place the blanket comfortably and not have to push it in through the port hole.

Picture 2. Kick microphone placement (Jordan Young 2025)

The microphone of choice for the recording was a Shure BETA 52A. The Shure BETA 52A is a high output dynamic microphone with a tailored frequency response designed specifically for kick drums and other bass instruments. It provides superb attack and "punch", and delivers studio quality sound even at extremely high sound pressure levels (Shure, n.d). I first positioned the microphone inside the kick drum through the port hole, around the middle of the kick and facing the spot where the

batter head of the kick pedal hit the skin of the drum. I really liked the punchy and “click” type of sound I got from that mic position, but I couldn’t get enough low end out of it. I had to reconsider and decided to place the microphone at the port hole of the kick drum, with just the membrane of the BETA 52A poking through and pointing at the position where the batter hits the skin. By moving the microphone back, I was left with a more naturally balanced sound due to the amount of time I had given the sound wave to develop its low end.

4.1.2 Snare

I find snares extremely important in any production, not only because it is the driving force that makes the music move forward and determines the backbeat of a song, but because if it doesn’t have a good tone, it will immediately stand out. The drummer had an excellent drum snare, a Yamaha Recording Custom 14” x 6´5” to be more precise. The first time I heard the snare I was gratefully impressed because it was very full, warm, articulate and an extremely loud piece of kit. It immediately stood out as the kind of sound I was looking for. My job was to capture that “beefiness” and “smack”. Before I placed a microphone on it, I gave a listen to it by itself. The outcome was the same as the kick, I wanted a little less ring, so I had the drummer place some Moon gel on the batter's head to reduce it. Over 25 years ago Moon gel was created to stop the ring and control the resonance that drummers have long time struggled with (RTOM, n.d).

Picture 3. Snare Top microphone placement (Jordan Young 2025)

Picture 4. Snare Bottom microphone placement (Jordan Young 2025)

Shure SM57, this was my microphone of choice. I used two of them, one on top to capture the body of the snare and one on the bottom to capture the “crack”. On the batter head I had the SM57 placed between the hi hat and the rack tom to minimize leakage. I had the microphone at exactly two fingers (placed horizontally) above the snare with the capsule of the microphone placed just over the rim. To capture the maximum amount of transient, the mic was angled at around 150° pointing at the center of the drum where the drumstick hits the head. Along with this microphone, I placed another 57 under the snare, 4 fingers horizontally, pointing at the snares of the drum with the polarity reversed to have both mics in phase.

4.1.3 Toms

When it came to recording toms, the goal was pretty simple: minimize the amount of leakage from other drums and capture as much attack as possible. The microphones I used for this were Sennheiser E604´s and I placed them 3 fingers (horizontally) above the tom trying to point them away from any other loud source like the snare and cymbals. I tried angling them differently to experiment with the amount of tone and ring I could get out of the toms but ended up deciding to position them facing the center of the drum for maximum attack.

Picture 5. Floor Tom microphone placement (Jordan Young 2025)

4.1.4 Cymbals & Spot Mics

According to Bobby Owsinski (2017, 155) the overheads can either be used to capture the sound of the entire kit or can be used primarily as cymbals mics. In my case I was looking to isolate the cymbals as much as possible to let the direct sound of the shells punch through much more. I was also after a very “airy” sound that would fill the top of the frequency spectrum of my songs. To accomplish this, I used a spaced pair of AKG C451 B microphones with their built-in filter placed at 150 Hz to get rid of unnecessary low end. The spaced pair technique is a stereo miking technique that takes two identical microphones and places them on stands usually 3 to 10 feet apart. The distance will depend on the size of the musical group being recorded (Shure, 2017). The intention behind the positioning of the microphones was to create an equilateral triangle between the microphones and the snare. This was done to maintain the phase correlation with the snare by assuring every time the snare was struck its sound would reach both microphones at the same time. I reached this status when I placed the microphones 40 cm above the cymbals and 120 cm between each other.

Picture 6. Overhead microphones placement (Jordan Young 2025)

When I speak about spot mics, I refer to using a microphone on individual cymbals like the ride and the Hihat. I personally did this to have more control over the amount of articulation I wanted from both of these cymbals during the mixing stage. Since I already had pretty bright microphones on the overheads, I decided to go with choices that were flatter and darker. I Mic'd the ride cymbal with a Shure SM81 placed 20 cm above the middle of the cymbal itself. I did not want to point the microphone directly at the bell because of the “gong” kind of sound I was obtaining, so it was pointed at around 45°-degree angle in the middle of the cymbal. The Hihat mic was a Shure SM7B which is known to be a pretty dark mic but with a nice mid-range to it. The microphone was placed 15 cm away from the middle of the cymbal and pointed downwards.

Picture 7. Ride Microphone Placement (Jordan Young 2025)

Picture 8. HiHat Microphone Placement (Jordan Young 2025)

4.1.5 Rooms

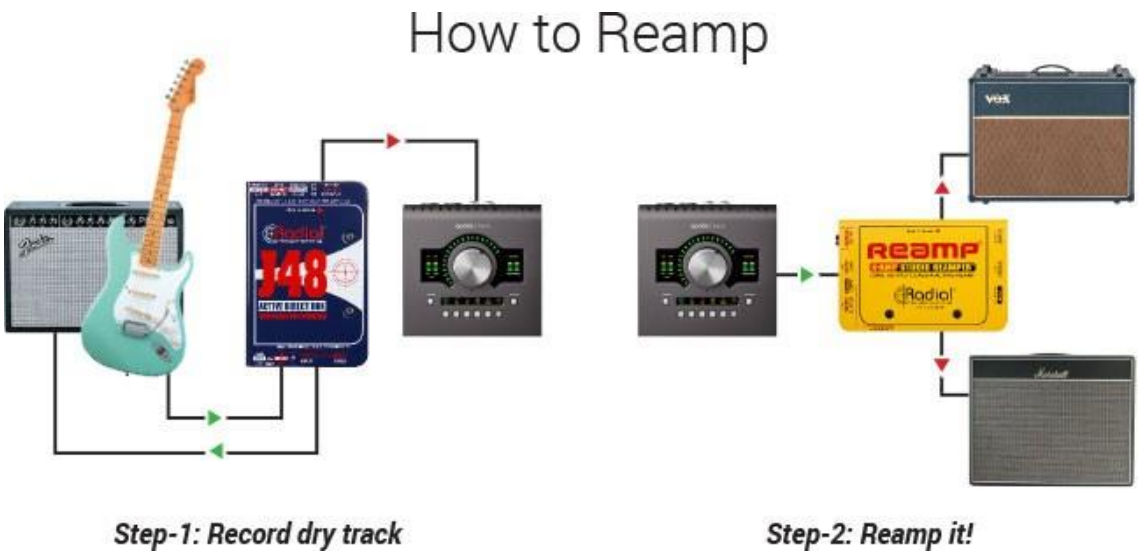
Author Bobby Owsinski (2017, 158), states that sometimes room mics can be the added glue that makes the individual drums sound like a single coherent drum kit. My train of thought when trying to record the rooms was to compliment the direct sound of the shells and cymbals to accomplish a bigger drum sound. The problem I faced was the room itself. It was a pretty small room with low ceilings and acoustically treated in a way where it wasn't too reflective. Even though I was aware of this, I tried my best, with plan B in mind to recreate a drum sound with plugins if necessary.

I decided to use an XY stereo technique to capture the room's sound. The X-Y technique consists of two identical cardioid microphones, placed on top of each other while facing away from each other at a 90-degree angle (RØDE, 2018).
The microphones I employed for this task were another pair of AKG C451B placed facing the opposite side of drum kit, 2 meters away and centered with the snare drum. I must confess this was a mistake because of how bright the microphones are and how much they accentuated the cymbals in the room, but I still got a somewhat usable sound if processed during the mix stage.

Picture 9. XY technique used to record the room ambience (Jordan Young 2025)

4.2 Bass

The significance of the bass guitar in punk music cannot be overstated. It functions as a bridge between rhythm and melody, engaging the listener on multiple levels. In many instances, the bass serves to elevate a band's sound, offering both depth and clarity (Golden Scissors, n.d). Recording engineer Bobby Owsinski (2017, p.160), reaffirms that a great bass sound is dependent upon the bass, the player, the amp, and the room. There are 2 ways of recording electric bass guitar. One is by miking up a bass amp and cab; the other one is as simple as capturing the bass sound through a DI Box and then reamping. Reamping is a studio recording technique that involves taking a recorded audio track (usually guitar or bass) and playing it back through a guitar amplifier, then capturing the results by recording the output of the amp to a new track (Radial Engineering, n.d).



Picture 10. How to Reamp (Radial Engineering 2018)

In the case of "For Better or For Worse" the second choice was the most viable option due to not having a real amp to record and the versatility to create a tone that reamping offers. The bass used during the recording was a Music Man Sterling Ray 34 with Daddario EXL165 strings. It was a perfect fit for the genre because of the low end and aggressive mid-range it offers from the bat. That went into a Radial Engineering Pro 48 DI Box that then connected straight into the preamp of a Universal Audio Apollo Twin X interface. For monitoring purposes only, the bass was sent through the STL ToneHub plugin so everything could be heard during the recording stage. After the bass was recorded and edited, it was reamped through a SansAmp Tech 21 Bass Driver V2 pedal to accomplish the tone I was after. The setup was pretty simple: the eq was set at 12 o'clock and I only played with the drive to get the amount of crunch I was after.

4.3 Electric Guitars

The same way there are multiple techniques to capture bass guitar sounds, there are multiple ways to record electric guitars. The traditional and most employed method until recent years was to grab an amp you like and put it in a room, dial in a tone that sounded great and place a microphone in front of it to capture the sound.

With the appearance of new technologies like amp simulators and plugins, this method has become outdated.

Not because of it sounding bad, most of the records with great guitar tones that we know nowadays have been recorded this way, but because amp simulators have become so good and so easy to use that it has made players and producers substitute their bulky amps with small devices that fit in a backpack.

The recording process of the guitars of “For Better or For Worse” was no different than the process I used to record bass. I recorded the DI signal through the Radial DI box into the Preamp of the Universal Audio Apollo Twin X and then reamped it. Guitars felt like the longest phase of the recording process to get right due to the amount of guitar and amp choices I had. Multiple tests were done with different guitars to help me choose which ones would be used. I landed on a Schecter Hellraiser C1 with active EMG pickups and Ernie Ball Burly Slinky Custom Gauge strings for rhythm guitars and a Squier Stratocaster with custom Seymour Duncan pickups and the same strings for leads and crunchy tones. The reason I used multiple guitars was to get a bigger overall sound with as much separation as possible. I luckily got my hands on a Neural DSP Quad Cortex amp modeler to reamp with. After trying other multiple digital amp modelers, I can confidently say this was the closest one to the real thing I had ever used.

Picture 11. Neural DSP Quad Cortex Amp Modeler (Neural DSP n.d.)

This was when the process got a bit complicated. Getting the right guitar tone for the songs was an important part of the outcome of the EP. This made me go into test mode. Pop Punk is known for amplifiers like Marshall, Orange, Soldano and Mesa Boogie. After testing multiple models from these brands and not getting the tone I was after, I landed on amps that are not commonly used in the genre.

For Rhythm & Lead Guitars the signal flow went through the following process: Ibanez Tube Screamer pedal with the gain at 0 and the tone and gain at 5, Diezel Herbert amp head on channel 2 with the gain pulled down to around 3 o'clock and the EQ pots at 12 o'clock, IR of an ENGL 4X12 cab loaded with vintage 30 speakers and a Graphic EQ pulling down 4 dB at 2.4 KHz. The microphone used to capture all this was a Shure SM57 2 inches away from the center of the speaker cone. No effects were printed during this stage.

For Crunch & Clean guitar tones the signal flow went through a Vox AC 30 amp with the volume at 4 o'clock and the master output at 5 o'clock. The bright switch was enabled, and the tone cut was in the middle, at 5 o'clock. A matching Vox cab was used with an SM57 on the left speaker 2 inches away from the center of the cone and a Beyerdynamic M160 Ribbon mic 4 inches away from the center of the right speaker cone. The reason for using 2 microphones was to combine their sound. The SM57 provided the definition and articulation, and the M160 was in charge of bringing the low end into the picture.

As has been common for many years, guitar production consisted of me having the band double track rhythm guitars and some of the leads to have them panned in the stereo field. Most crunchy tones we just recorded once. Guitar solos were recorded with the intention of keeping them centered in the stereo field.

4.4 Acoustic Guitar

Acoustic guitar was recorded for one chorus during the making of “Rocky Road”, one of the songs on the EP. I used an AKG C451B with the filter activated at 75 Hz and pointed at the 12th fret of the guitar at around 50 cm and into the preamp of an Apollo Twin X. This time I made the most of the capabilities of Universal Audio’s Unison Technology. Unison™ is Universal Audio's exclusive analog/digital integration system that's built into every Apollo microphone preamplifier. It's the first and only way to truly emulate classic analog mic preamp, guitar amp, and pedal behaviors in an audio interface (Universal Audio, 2024). This technology allowed me to emulate the signal path of an acoustic guitar recorded with a Universal Audio LA-6176; an extremely renowned channel strip used in many recording studios. I just ran the signal of my acoustic guitar through it to let it capture the character of the channel strip before reaching the DAW. The whole purpose of this guitar was to have it layered with the rhythm guitars to add a sense of air and percussiveness to the last chorus of the song, making it sound a little more open.

4.5 Vocals

Vocals are arguably the most important element of your recording. The vocals are crucial in conveying the emotion of the listener and thereby have a great impact on the production. The lead vocal can make or break a song (Abbey Road Institute, 2020). A good vocal recording relies mainly on three things: good vocal technique; good microphone technique; and good interpersonal skills (Robjohns, 1997). It is clear how important vocals are to any production since they carry and convey the message that wants to be transmitted to the listener. I do not consider myself a skilled vocalist and wasn’t extremely comfortable assuming this position at first, but it proved to be a very fun experience.

Vocal recordings took place during multiple sessions, in various locations, due to the availability of everyone. I found it important to have my bandmates present during this process because I wanted the lyrics and performance to be meaningful to

everyone in the band. Vocals are a very personal form of expression that represents one's emotions, and I did not take that lightly. Before the recordings started, I wanted to try all the microphones that were at my disposal to make sure I found the perfect match for my voice. The microphones were a Rode NT1A and a Shure SM7B. I recorded a verse with both mics to have something to compare them with. I have used both microphones for years and I have never been keen on the NT1A, but I still gave it a shot. My intuition was not wrong; I found the Rode mic to be too rounded, warm and sterile sounding for pop punk. Even though the Shure SM7B is still a pretty dark microphone, I found it provided me with more transient definition, overall frequency control and detail. Recordings took place in untreated rooms, so another advantage I found with the SM7B is how good it is at reflection rejection. The classic cardioid pattern is designed to reject off-axis audio (Shure n.d.). A decision was made to use the SM7B in combination with a Triton FetHead to achieve a cleaner signal going into the DAW. The FetHead provided an extra 27 dB´s of clean gain that helped reduce the noise floor that was brought up by having to push the Apollo preamp too hard to achieve a healthy signal. Since I was engineering myself during these sessions, the microphone had to be handheld, a way in which the SM7B exceeded. Once more, advantage of the Unison technology was taken by inserting an Empirical Labs Distressor EL8 compressor into the vocal signal flow before hitting Logic Pro X. I wanted to get as close as possible to the end result during the recording stage, so this compressor helped reduce the dynamic range of my vocal and therefore made it fit better in the context of the rest of instruments.

Production wise, the vocals were pretty simple. When I approach vocal recording, I tend to rely heavily on comping unless I'm working with a very experienced vocalist. This process worked like a charm because it gave me the chance to perform each part in many ways and then combine them into one single take. With the lead vocals ready, background vocals and harmonies were recorded to make the overall sound bigger during certain parts of the songs. They were double tracked to have the ability to pan them later on in the mix. These were all performed by me and written on the spot by the band. Another production technique that was used was gang vocals. The powerful burst of energy these provided really helped convey the kind of message we were trying to evoke. These were recorded multiple times by the whole band by

having everyone placed around 1m away from the microphone and singing at the same time.

4.6 Alternative Technique

There were times during the making of this EP that session musicians and specific backline were not available for production. This placed me in a position where many producers are these days when working from home studios. I had no way of recording drums or a bass at my disposition and this led me to programming with virtual instruments. In the modern music production landscape, virtual instruments and plugins have revolutionized how musicians, producers, and audio engineers create, manipulate, and refine sound. Virtual instruments are software-based tools that emulate the sound and behavior of traditional musical instruments. Unlike physical instruments, virtual instruments can be played and recorded directly within a Digital Audio Workstation (University of Silicon Valley, 2024).

For the song “Helpless” the drums and bass were done with virtual instruments through MIDI programming. The process consisted of creating drum and bass parts that a musician would come up with. A software called GGD One Kit Wonder: Aggressive Rock was utilized for the creation of the drums. This is an extremely realistic virtual instrument that recreates the sound of real drums really well. A lot of experimenting took place to come up with parts that matched the song’s vibe.

The bass programming was done with a virtual instrument called PunkBass by Submission Audio. Influenced by iconic bands like Blink 182, PunkBass is a virtual instrument which nails that timeless sound, based on a Fender Mark Hoppus P-Bass (Submission Audio, n.d.). The process of programming a bass line proved a lot easier than the drums; I just made the bass line follow the guitar's progression for low end support and power. I must add that this plugin sounds mixed-ready from the bat, which helps boost inspiration and expedites the production process a lot.

Guitar tones were also done ITB for this song. An amp simulator called STL AmpHub helped me achieve the tones I was after. This plugin presents the user with a collection of amps and cabs with endless options to achieve the tone they are after. The amp of choice for this song was a Marshall JCM800 with a Marshall 1960A cab, miked with a Shure SM57.

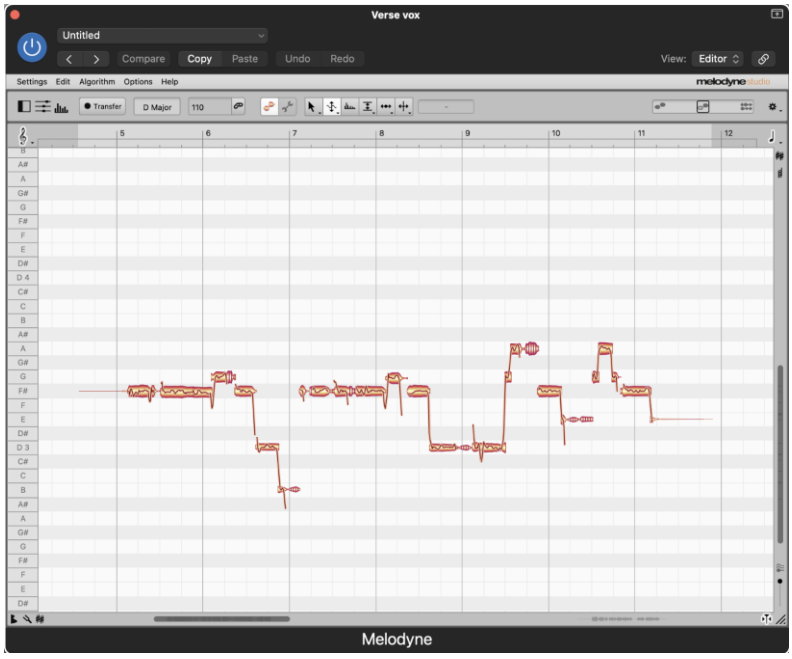
5 EDITING

Audio editing can be defined as the process of preparing recordings for the mixing stage. This can include cleaning up unwanted noises and bleed from tracks, comping, modifying the timing of a performance to make it fit better in the song and add musical value, or correcting the vocal pitch, amongst many others. Audio editing is about making sure each element sits perfectly in the mix, creating a seamless and immersive experience for the listener (Morplay Studios, n.d). Modern productions tend to sound very tight and polished. This comes from great performances and/or edition. I personally find it more important to try and push musicians to perform at their maximum level when recording than to have to rely on editing later.

The first thing that was done during editing was to remove unwanted bleed and noise that was present when the drummer wasn't playing. This helped achieve a tidier and cleaner song. A discussion was had with the drummer to agree on what kind of sound we were after. At first, he wasn't too keen on the idea of quantization of the drums, but after a short conversation he was convinced that edition was needed to replicate any modern sounding production. Quantization was done in Logic Pro X using its Flex Time Tool. Flex Time simplifies the process of editing the timing of notes, beats, and other events in audio regions. You can compress or expand the time between specified events in an audio region without the need for trimming, moving, nudging, or crossfading (Apple, n.d). The time was taken to edit the drums in a way where they felt tight but still respected the dynamic performance of the drummer, to maintain a natural feel to them. After showing the drummer the result, he was pleased to have proceeded the way we did. Another common editing technique used for drums is to remove the noise present between tom hits. Luckily the tom mics had been placed in a way where the bleed of the rest of the kit wasn't enough to muddy up the drum mix. Instead of employing this technique, the decision was made to gate the toms during the mixing stage if necessary.

Bass and guitar editing proved to be much simpler than drum editing. The only thing that was done was removing the unwanted hum that came from guitar pickups and

any noise present during the takes. Guitars were recorded multiple times to create a big sound, so I took the time to make sure these takes matched each other length and time wise. Vocals were the most time-consuming part of the production to edit. The size of the vocal production and the fact that I am not an experienced singer were the reasons behind this. The first thing that was done was to remove any unwanted noise present when there was no singing. Timing wise, vocals were kept pretty much the same way they were captured during recording. Pitch-wise, the vocals needed some work. Unexperienced singers tend to be more pitchy during recording sessions due to lack of experience, lack of confidence, or bad monitoring. There are tools like Antares Autotune or Celemony´s Melodyne that help correct these pitch inconsistencies. The main difference is that one does the task automatically, and the other one involves manual labor in order for it to do what it's meant to. In the case of "For Better or For Worse", vocals were processed with Melodyne to be able to precisely do the job. The process consisted of letting the tool analyze the vocals and then manually adjust each note to taste to maintain a natural feel. Multiple revisions were needed to achieve a result that the band and I were happy with. This proved, once more, that it is better to capture a near perfect take than rely on post processing to make it perfect.



Picture 12. Vocal tuning with Melodyne 5 (Jordan Young 2025)

6 MIXING

Mixing music can be defined as the process of combining multiple audio tracks into a listenable product. The primary goals of mixing are to achieve a balanced, cohesive, and sonically pleasing sound that translates well across various playback systems, such as speakers and headphones (Avid 2023). A good mix is not good enough if only the technical aspects are taken into consideration; it must also transmit a songs message and enhance its emotions (Rich Mendelson n.d). There are no right or wrongs in mixing, only a result that will connect with the listener more. My way of completing a mix is by having a systematic approach in which I always follow the same steps to be able to achieve consistent results. One of those approaches is called Top-Down Mixing. Top-down mixing is when you begin the mixing process by placing signal processing (EQ, compressors, etc.) on your mix bus and listening to all the tracks through the mix bus before modifying individual tracks or instrument buses (Rollins, 2023). Before any processing was applied to any tracks of the mix, all elements were routed and prepared for processing.

The first thing that was done was routing the multitrack. Buses were created for drums, bass, rhythm guitars, lead guitars, acoustic guitars, lead vocals, and backing vocals. An audio effects template was present inside the mixing session before importing any tracks in order to avoid unnecessarily getting distracted further down the line. A reference track that represented the sonic goal that was trying to achieve was also imported at this time. The way “For Better or For Worse” was mixed, was by creating a template that would allow me to make similar processing moves throughout all the songs. This meant that tracks would be processed very similarly with one another in between songs. Once the mix was prepared, levels were done to build the mix.

6.1 Mix Bus

A mix bus is a way of routing multiple tracks into one channel to process them simultaneously (Stewart, 2021). Shaping the whole mix at once is the purpose of utilizing Mix Bus processing. The first thing I do before I move onto individual tracks is to load my mix bus chain, which is normally some sort of compressor followed by EQ.

The first thing on the mix bus was the SSL Native Bus Compressor 2. Compressing the stereo bus can give your music coherence, smoothness and, above all, punch (Haas 2008). The settings I used and tend to go for are a 10 ms attack, auto-release, a 4:1 ratio, and the threshold set to not exceed more than 3 dB of compression. The next plugin in the chain was the UAD Pultec EQP-1A EQ. I used this to boost 2,5 dBs at 12 kHz to open the top end of the mix and gain some sheen; and boosted 2 dBs at 60 Hz to gain some punch and size in the low end. I referenced throughout the whole mixing process, which helped me realize I was landing on the harsh side of things when reaching the end of my mixes. A plugin called Oeksound Soothe2 helped me solve this problem. Soothe2 is a dynamic resonance suppressor that identifies problematic resonances on the fly and applies matching reduction automatically (Oeksound n.d). All this plugin did was remove some harshness and a “type of sound” at the end of my mixes.

6.2 Individual Processing

After achieving a better overall tonal balance by applying mix bus processing, it was time to consider what to do next. Since I mixed this project on headphones, Sennheiser HD 600´S to be exact, I found it easier to do all my balancing and mix processing in mono so now it was time to complete the panning process. I used what is called an LCR (Left Center Right) panning with a bit of a twist. LCR is a technique in which elements are only panned in either center, hard left or hard right. My center elements were kick, snare, bass, lead vocals and some lead guitars. Everything else was panned hard left and hard right except for the toms and some doubled lead guitars.

With the tracks now balanced and panned, it was time to process the drums. I always start with the drums when mixing because they are the rhythmic bed that everything else dances to, and the first element I always go for first is the kick. Since some unwanted bleed from the rest of the kit captured during the recording was present in the take, I grabbed a drum gate to eliminate it. The gate of choice for the kick and the rest of the drum shells was Black Salt Audio's Silencer set to the fastest attack and 1000 ms release. The philosophy behind this was to isolate the kick sound as much as possible so that bleed didn't become more obvious after processing. After listening to the kick in the context of the mix, I got to work. A Waves SSL Channel strip was inserted in the plugin chain to add 4.2 dBs at 4.5 kHz and 8.1 dBs at 8kHz to exaggerate the presence and attack of the kick drum. 2.3 dBs were added with a bell shape 60 Hz to bring out the size and punch of the kick. After this I utilized the high pass filter in the channel strip to tighten that low end boost by placing it at 63 Hz. I realized the kick was muddying up the mix, so I utilized my last eq band by placing it at 220 Hz and cutting 7.8 decibels. After this I wanted to add some more energy, so I utilized the SSL channel strip compressor with 3:1 Ratio, slow attack and fastest release. The compressor then brought up some unwanted frequencies, so I went on searching for them. I found that the 800 Hz area was bringing out a "plastic" kind of character that I did not like, so I removed it by cutting 14 dBs with a 0.7 Q value. I then inserted a tape plugin to round out the transients that the EQ and compression had exaggerated a bit. After all this processing I realized I still was not happy enough with the results, so I took advantage of Trigger 2, a drum replacement plugin by Steven Slate that allows you to augment your drum sounds by combining or replacing them with samples. I found a sample to help my kick have a more consistent attack and punch.

Snare processing didn't vary too much from the kick. I had previously bussed all the snare tracks and samples on a bus to be able to process them together. Gating was the first step in the process with the same settings as the kick. Then I got to cutting out an annoying "boxy" frequency at 707 Hz by 9.7 db. I then added another Waves SSL channel strip for brightness and attack by adding 4.2 dBs at 8kHZ and 2.3 dBs at 2.5 kHz; and some body at 200 Hz by 3 dBs going into the plugin's compressor

with the same settings as the kick to add intensity. My next plugin in the chain was Sound Toys Decapitator. That helped me fatten up the snare sound and clip the transients a little bit. After this, I was getting a sort of “papery” sound that I didn’t like and found the culprit with an eq and cut it out at 5.4 kHz by 2.8 dbs. With tall this done, I then added a room sample to add excitement and space to the snare sound.

Overheads were the next element to be processed. These were kept very simple. I wanted to isolate the cymbals as much as possible and get rid of any kick and snare bleed present. I did this by High passing the overheads with a FabFilter Pro Q at 400 Hz. Some of the lower midrange was muddying up the whole kit, so I cut 5.5 dB at 550 Hz with a very wide bell. I then heard a really piercing frequency that was making the overheads harsh at 3.2 kHz, so I cut it out by 12 dB and a narrow Q. Since the microphones I had used for the recording were bright, I found myself not needing to boost any top end in the mix. I had to low pass the track at 18000 Hz in order to get rid of some of hiss. My goal after this was to control the overheads dynamic range since they were jumping out a bit. I went with a UAD 1176 Rev E with a 4:1 ratio; the attack set at its fastest setting and the release at 5 o’clock. The threshold was set so the compressor only reacted to loud peaks and compressed between 1 and 4 dbs.

I then moved onto the toms. The processing of the toms was almost identical to the kick. The toms were gated utilizing the Silencer plugin to get rid of bleed. I then cut the mud out at 310 Hz with a 3.1 dB cut; and some boxiness at 830 Hz with a 2.5 dB cut. Another SSL Channel strip was inserted on both tom tracks with the same settings except for the low-end boost frequency. For brightness and attack, 4.8 dB was added at 8kHz along with a 6.8 dB boost at 4.5 kHz. The low end of the rack tom was boosted with a bell at 116 Hz by 5.3 dBs and the low end of the floor tom was boosted in the same way by 5.3 dBs at 87 Hz. After this I compressed the tom bus in order to achieve a similar dynamic response for both toms. A UAD 1176 Rev E with a 4:1 ratio, slowest attack and fastest release did the job by compressing between 3 and 6 dbs.

Since the drums were recorded in a small room with not much reverb and character, I struggled to get a useful ambience out of it. I tried compressing the recorded tracks with a UAD 1176 Rev E to get some ambience out of them with no luck. This took me to use a plugin to create this ambience. The plugin of choice was Purafied´s The Panda Rooms on an aux track set to its default setting. I sent all my drums to this aux and just blended it into the desired amount. The sound I got out of it was pretty balanced and punchy from the bat, so I did no extra processing.

With all the drum tracks processed, I asked myself what else I was missing. The answer was more punch and some “glue”. For this I took advantage of parallel compression and drum bus compression. I set up an SSL Native Compressor 2 on an aux track where I sent all my drum shells. The intention was to get a very snappy and intense sound that I could blend into the drum kit for extra punch. I achieved this by setting the ratio at 10:1, the attack at 1 ms and the release at its quickest. I then lowered the threshold until I could hear the drums become extremely “slammy”, at least 12 dBs of compression. I then blended this signal in parallel until I got the amount of punch and density I needed. For the glue I went for the same SSL compressor but this time on the drum bus. The settings were the slowest attack and fastest release with a 2:1 ratio. The whole intention of this compressor was to make the drums feel “glued” together, so the amount of compression didn’t exceed 1 db.

Bass guitar was split into two signals, the D.I and the amp tracks, sent to a bass bus. The D.I signal was filtered with a low pass filter at around 140 Hz and the amp signal was high passed at that same frequency. The reason for this was to get the clean low-end signal from the D.I in combination with the distorted midrange from the Sans Amp. The processing was done on the bus, and it started with a Waves SSL Channel filtering the bass at 70 and 4000 Hz to get rid of excessive sub info and the annoying buzz sound that is unnecessary. The bass was then boosted 4.4 dBs at 1.6 kHz and 1.2 dBs at 2.5 kHz in order to get it to cut through the mix. This signal was later processed through another UAD 1176 Rev E compressor with the attack set at 4 and release at 6, the ratio at 4:1 and the gain reduction meter reading between -1 and -3 dbs.

The rhythm guitars were a simple step in this stage. EQ, multi band compression, and conventional compression were used. The process started with notching out some 3.5 kHz by 0.9 dBs to get rid of a minimum amount of hiss present in the context of the mix. To get some presence and push the guitars forward, I inserted a waves API 550 B EQ with a boost at 5 kHz by 2 dBs and another one at 1 kHz by 2 dbs. Then multi-band compression came into play during the guitar palm mutes. Excessive buildup in the low mid-range was clouding up the mix and masking the snare body, so I inserted a FabFilter Pro MB with a single band set between 100 and 350 Hz. This band only activated itself during palm mute parts of the song. It was set with a fast attack, fast-medium release, and a range of 6 dbs. It read a maximum of 3dBs of compression during big build-ups. To add some color and character I utilized the UAD LA3A compressor. I feel like it smooths out some of the harshness inherently natural in distorted guitars, helping to tuck them in the mix a bit. The compressor was set so it read between 3 and 4 dBs of compression at maximum.

The approach that was taken to mix lead guitars was to route them all to a bus and have the same processing on all of them. The process for lead guitars was mostly to make them fit in the mix with eq. I started with filtering. A 200 Hz High Pass Filter was applied to the bus, followed by a Low Pass Filter at 6.8 kHz with a FabFilter Pro Q3. 1.3 dBs were then notched out the lead guitars to get rid of some unwanted distortion noise. To make them stand out in the mix I boosted 2.5 kHz by 1.4 dBs and 5 kHz by 3.8 dbs. Processing wise that was all that was done for lead guitars. The bus was then assigned to 3 sends: a mono delay at 1/8th notes with 30% feedback coming out of a Soundtoys Echo Boy for space, a stereo ping pong delay set at 1/8th and 1/4 notes with 20 % feedback and filtered to 900 Hz and 5.7 kHz out of the same plugin for movement; and a Soundtoys Microshift as chorusing effect for widening. All these sends were automated throughout the songs to achieve the required goal out of them.

Acoustic Guitars were a minor part of the songs. Their importance was focused on their percussive top-end brightness. Therefore, the acoustic was filtered and compressed a lot. Back to SSL Channel strip, this was the plugin used for all the tonal sculpting. I started by high passing at 188 Hz. This was because I only needed the

top end of the acoustics, not the body. I then added that brightness by boosting 7.4 dBs at 10 kHz. The signal was then passed through a UAD LA3A to add some snap and movement to the guitars. The cost for all this snap was a lot of peaks, which had to be controlled in order for the guitar to fit in the track nicely. This was done with a Waves L1 Limiter that compressed regularly between 1 and 3 dbs. Since they were recorded dry, they needed some ambience to sound appealing. They were sent to an aux track with a Valhalla Room reverb plugin on it. This was set at 0.60s decay, a pre delay of 18.8 ms in chamber mode. When blended in with the acoustics, this reverb made them sound bigger and wider, apart from making them fit better in the mix.

Vocal processing started with me hearing really harsh annoying frequencies that stood out from time to time during certain sentences. I inserted a FabFilter Pro Q3 and found frequencies that needed cutting in a dynamic way because they weren't abrasive all the time. These frequencies were 3.7 kHz, 5.9 kHz, and 6.4 kHz. This process was very surgical and time consuming with it did make a difference. After this, it was time to control the vocals with compression since they were inconsistent level wise. I first utilized the SSL Channel compressor. This was set to catch the peaks of the vocal with a ratio of 5:1, attack and release at their fastest setting and the threshold set until I could hear the vocal become more stable and consistent. Normally between 3 and 10 dBs of gain reduction. I filtered the vocals with a high-pass filter at 103 Hz and then used the EQ section of the SSL Channel to make the vocals brighter by boosting 7.3 kHz by 5.6 dBs with a shelf. I wanted the high-mids of the vocals to cut through the wall of guitars, so I needed to boost 4.47 kHz by 2.6 dB and 1.7kHz by 1.3 dbs. Once I completed all this, I realized the vocals were still a bit Low-end heavy, so I utilized the Low shelf set at 150 Hz to cut 1.9 dBs to make more space for the low-end elements. In the context of the mix, the vocals were still not cutting through enough. The problem was that consonants transients were too soft. The tool that exceeds bringing out the transient of a vocalist is a UAD 1176 Rev A compressor. This was set at a 4:1 ratio with the attack set at 4 and release at 7. The approach I followed was to compress the vocals hard enough so that it felt like they were jumping at me. The gain reduction meter was reading between -10 and -20 dbs average. All this compression brought up the sibilance of the vocals, so it

was time to control that. Waves R DeEsser set at the female DeEss Wide preset did the job fantastically. It smoothed out the sibilance and allowed me to maintain the brightness I needed for the vocals. The compression also brought up some harshness in the 3 kHz area. I used a DeEsser again, but this time it was the Waves DeEsser. It was set with a bell filter and centered at 2.9 kHz. I lowered the threshold on this until I felt like the vocals were not as harsh and still present. The last plugin in the chain was an L1 Limiter. I used this to control some of those consonants I had previously brought up with the 1176. The average reading on the gain reduction meter did not exceed the -3 mark at any point.

With backing vocals, I used the exact same method as the main vocalist but with a few twists. The only differences were that I filtered the backing at around 170 Hz in order to not have the low end interfere with the lead vocals. I also did not boost any high-mids so they felt more pushed back in the mix. I did use the SSL Channel compressor with the same settings as the lead vocals to control them and stabilize them, but I did not employ the 1176 because I did not need that type of energy for them. I also used the Waves R DeEsser in a more extreme way to not have sibilance on the sides distracting from the brightness of the lead vocals.

Vocal effects wise, pop punk tends to keep things pretty dry. I had an aux with a Slap delay set at 180 ms L and 220 ms R coming out of SoundToys Echo Boy, one aux with a Valhalla Vintage Verb set on the plate mode with a 1.6 s Decay and 30 ms Pre Delay and an aux with another Echo Boy set as 1/2nd note ping pong with for Delay Throws. The slap delay was the effect I used the most since I found it to be the one that gave me the most space and movement and the one that clouded the mix the least.

7 DISCUSSION

At the present time of writing this thesis, “For Better or For Worse” has not yet been released. Not long has passed since the EP was finished and the band is already thinking about their next endeavour. This has been the first time I was fully in charge of a project of this type, and I can confirm that mistakes have been made and mended along the way. The experience has not also provided me with new knowledge and skills that make me feel more prepared for the future but has also brought motivation to continue down this path for many years to come.

Challenges have been a normality during this time and there are so many things I would do differently now. One of those challenges has been time. Organization of writing and recording sessions has to be spaced out less in order to maintain continuity. The band worked their best pieces once they got into the habit of creating continuously. Another challenge faced was location. With me residing in Finland and the other band members living in Spain, the writing sessions were done online when it suited everyone. As a solution to this, a writing camp can be organized to solely focus on composing the best songs we can. Not having a dedicated space to record, especially drums, has been a major challenge which I am proud to have faced. It has put me into a resolutive mindset that I will employ in future projects. I have a special motivation to keep improving technically. Studying to understand recording intricacies has created a passion in me that I want to exploit.

“For Better or For Worse” will serve as milestone and a goal to exceed in my future. This is my first time working on this type of project, I can say I am extremely grateful for the experience as it has helped me become a better composer, producer, and sound engineer. I have not only gained knowledge and skill, but I have also made lifetime memories.

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APPENDICES

Dstant - “For Better or For Worse”

Dstant - By Default in For Better or For Worse