Tampere University of Applied Sciences

Mixing modern hip-hop music

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ABSTRACT

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Hip-hop is a genre of popular music that has evolved immensely during the past decades. The aim of this Bachelor's thesis was to study and describe the characteristics of modern hip-hop music from the point of view of mixing. The theoretical chapter was focused on the methods and techniques that are generally used in the process of mixing modern hip-hop music.

The thesis combined a study on the subject with a practical project which involved the author working in the role of a mixing engineer on a full-length hip-hop album CREW by a Finnish hip-hop artist Miigka. The project had a sonic focus on the aesthetics and attributes of today's hip-hop music, as the album involves contemporary hip-hop productions, as well as modern vocal production and mixing techniques.

The information found through study was utilized as the foundation for the mixing process of this album, while the mix-related choices were based on literature, online articles and interviews of mixing engineers in the industry, as well as personal preferences and mixing experience. The goal of this Bachelor's thesis was to highlight the most critical aspects of hip-hop mixing, while providing technical information to people who find interest in the specifics of this genre of music.

Key words: mixing, music production, hip-hop, rap

CONTENTS

ABBREVIATIONS AND TERMS

808	Refers to type of kick/bass sounds originating from Roland TR-808 drum machine, which are widely used in hip-hop production.
Auto-Tune	Auto-Tune is a widely used software plugin designed for correcting pitch in vocal performances.
Bus	A mixer track where multiple tracks are routed to. A bus track is used to control the signal of several individual audio tracks.
Compressor	Audio processing tool used to adjust the dynamics of an audio signal.
DAW	DAW, short for “digital audio workstation” is a computer software used to working with music and audio.
Delay	Delay is an audio effect that creates an echo-like repetition of a sound signal.
dB	A decibel, is a unit of measurement used to express the intensity or level of a sound or signal.
EQ	An equalizer is an audio processing tool used to adjust the levels of different frequencies within audio.

Hz, kHz	Hertz (Hz) is a unit of measurement used to express frequency in audio. Kilohertz refers to one thousand hertz.
Limiter	An audio processing tool used to limit the output of an audio signal.
Multitrack	A multitrack refers to separate recordings of individual audio tracks that make up a song or recording.
Reverb	Reverb, short for "reverberation," is an audio effect that simulates the acoustic characteristics of a physical space. In other words, it makes a sound appear as though it is occurring in a specific room or environment.
Saturation	Saturation in audio refers to the intentional distortion or clipping of an audio signal, which can add harmonics, warmth, richness, and character to the sound.
Sidechain compression	Sidechain compression is when the level of one instrument or sound triggers a compressor to control the level of another sound.
VST Plugin	Virtual studio technology, refers to audio plugins that can be used to add new audio processing and effects capabilities.

1 INTRODUCTION

Hip-hop music has become one of the biggest genres of popular music and it has gained a broad mainstream appeal in the recent years. Due to the commercialization of the genre, one could argue that the criteria and demand for good quality mixes has become more apparent. The idea of this bachelor's thesis was to research mixing techniques focused on genre-specific elements of modern hip-hop music and provide information on how these techniques could be implemented in creating a mixdown. While the function of this thesis is not to work as a tutorial on how to mix, it should provide some general ideas for anyone interested in the fundamentals of modern hip-hop music from the perspective of mixing. The thesis aims to highlight the most important aspects of mixing modern rapping vocals and hip-hop beats while researching techniques that are generally found effective in the process.

The thesis has its main focus on the mixing process of a modern hip-hop album CREW, by a Finnish rap-artist Miigka, which works as the practical part and a work sample of the thesis. In the first half of my bachelor's thesis, I will be focusing on describing the characteristics of modern hip-hop music from the point of view of mixing. This part includes the introduction to the genre, as well as to mixing, but also discussing what characteristics are expected of the genre, and what kind of tools and techniques are generally used in the process. In the work sample section I will be going into the implementation of the techniques I used in the mixing process and explain the concepts on a more practical level, and that way promote the tools and techniques I personally found effective in the mixing process of this specific album.

2 MIXING

Audio mixing, or simply mixing, is part of the post-production process in music production, where multiple individual audio tracks are blended together to create a balanced final product, which is usually summed and exported to a single stereo audio file (Mendelson n.d.) Mixing typically takes place after the production process after song writing, arrangement and audio recordings of the track are completed. There are multiple technical procedures that take place in the mixing process, which are done using different types of audio processing tools and effects to control the output of the audio tracks that make up the song, also known as the multitrack. The main goal of mixing is usually to make every element in the song have a balanced relation to one another, while improving the overall sound, quality, and emotional impact of the song.

In addition to the technical procedures, the mixing process can often involve decision-making that can have a major impact on the aesthetics and sonic characteristics of the song, so mixing can also be considered a creative process (Hope 2023). The audio processing techniques and tools selected by the engineer have a great effect on the outcome of the mixes, and these more aesthetic choices made in the mixing process can simply be justified by taste and personal preference of the engineer. As every mixing engineer has their own style and approaches to mixing, essentially there are no definite right or wrong answers to how a song should be mixed. With mixing there is room for creativity, and sometimes unorthodox methods can lead into interesting artistic results, that in the best-case scenario can benefit the song by making it stand out from the songs of others.

Although certain mix choices can be purely artistic, there are also techniques that can be used to achieve a clean, balanced mix, as well as to creating a mix suitable for the specific genre. While basic principles and techniques of mixing can be applied to all styles of music, the best results can be achieved if the fundamental characteristics of the genre are taken into consideration during the mixing process. (Hope 2023.) In order to create a good mix, it must be considered what the key elements in that genre are, and which details need special attention.

3 MODERN HIP-HOP MUSIC

Hip-hop music, also known as rap, is a genre of popular music which originated in the Unites States in the 1970s, and which is most often characterized by a strong, rhythmic beat and a rapping vocal track (MasterClass 2021). During the past 50 years the genre has evolved immensely and new sub-genres, trends, and styles of hip-hop are continuously emerging. However, due to the diversity of the genre and its nature to combine elements from different styles of music, it is challenging to define today's hip-hop as one unified style of music. (Cundiff & Taylor 2023.) Although there are many different styles within the genre, the general characteristics and attributes of today's hip-hop songs often stay similar.

Generally the main attributes of today's hip-hop can be characterized by the style of production and instrumentation, also known as beats, but also in the more refined vocal production. The production of modern hip-hop music is heavily influenced by trap music, as it usually consists of the use of bass and drum sounds originating from Roland TR-808 drum machine, as well as the incorporation of time-stretched, sliced and manipulated music samples, synthesizers and loops. The vocal production also has a major role in the sound of today's hip-hop, as the way vocals are processed is a big part of the sound of the genre. (MasterClass 2021.) The distinct use of autotune as a vocal effect is common and the vocal mixes often have a more high-end frequency presence, compared to the mixes of earlier eras of hip-hop. While the term modern hip-hop is lacking an official definition, I will be using the term in my thesis to generally refer to the hip-hop music of today that has some of these qualities.

4 HIP-HOP BEATS

Although hip-hop music has changed and evolved throughout the years, beats are still considered as the foundation for any hip-hop song. Typically a modern, trap-style hip-hop beat consists of the following elements: a half-time drum pattern including a kick, snare/clap, hi-hats and cymbals, an 808-style bass, and melodic instruments such as synthesizers and music samples (Cant 2022). Despite the relatively low number of individual tracks in a hip-hop beat, there are still many factors that can cause issues in the mix. Common problems can be related to the balance, sounds used in the production, as well as conflicting frequencies which will not allow the key elements of the beat to translate in the mix.

The general goal of mixing beats is to make every element sound cohesive together while creating a suitable balance for the song (Brunotts 2023). Edwards (2018) points out that most hip-hop songs are driven by rhythm and groove and thus drums and bass are generally considered the most important instruments of the genre: “As far as the rhythm section of the song, consisting of drums and bass, since the beginning of time, is the basic foundation of the song”. As the low-end and rhythmic elements play the key roles in a hip-hop song, hard-hitting drums and a strong bass are often expected of the instrumental (Sturgis n.d.). While the mixes generally have a sonic emphasis on drums and bass, there should also be a plenty of space for the vocal performance, as the vocals are still the main focus of the genre. While hip-hop productions are all about simplicity, eliminating frequencies that conflict with the vocals can be crucial to the clarity and intelligibility of the vocal performance.

In terms of the creative workflow of beat-mixing, the production and mixing process often coexist – as beats are often mixed, at least partially, on the go during the production process by the beat-maker (Shelvock 2016, 172). However, when it comes to mixing hip-hop beats, when the final stems are sent to the engineer, what is asked from the engineer always depends on the situation. Sometimes the engineer might only receive a mixed 2-track stereo-file of the instrumental due to the availability of stems, which can leave less work but also

less overall control for the engineer, opposed to mixing a multitrack. However, the following subjects discussed, are more relevant to mixing a multitrack beat, as the focus will be on mixing individual elements of a beat.

4.1 Sound selection

In terms of workflow, mixing hip-hop seems to be greatly affected by beat-making practices, as the beat-maker's ability to make right choices in the production phase can have a major impact on the outcome of a mix. With sample-based productions, a good mix can sometimes be more dependent on a carefully curated, good quality samples rather than on the hours spent on shaping the individual sounds (Mastering the Mix 2020). To achieve a clean mix, it is ideal that every instrument and sound work together so that they musically complement each other and have the right frequency content and characteristics for the track (Lavoie 2022).

As sounds used in a hip-hop beat are usually coming from sample packs where they come in already processed and mixed at their starting point, it can often come down to using the right sample instead of trying to fix an unfitting sample (Gonsalves 2013). Although sound selection is traditionally considered a part of the production or beat-making process, the samples can also be replaced during the mixing phase to sounds that fit better to the context. On some occasions changing the sample of a specific sound, such as a kick drum, might be necessary to make the low-end elements sit better with each other, or generally make the mixdown of a beat to work better. (Zavoz n.d.) Sound replacement, however, is something to be discussed with the client, as changing the sounds too much could result in something that differs too much from the client's vision. It can be a safer option to stick with the original sounds and attempt improving them before replacing them, as this would ensure that the mixdown would remain more faithful to the feeling of the initial version. However, with a proper sound selection, clashing of the instruments can be avoided, and the amount of processing required in creating a clean mix can be minimized. (Cruz 2022.)

4.2 Balance

Balancing refers to the process of setting loudness levels of individual tracks in a project to create a suitable relation between all the elements in a song. While every song and beat should be treated according to the needs and goals of that particular song, in addition to the emphasized presence of the vocalist, the general emphasis placed on drums and low-end frequencies in hip-hop should be considered when balancing a hip-hop track (Shelvock 2016, 172). Due to the importance of rhythm and groove, drums and bass elements are often considered the most crucial parts about the instrumental, and thus prioritized in the level of volume in a mix (Weiss 2021). Hip-hop is fundamentally all about the interplay between the vocals and the drums, and therefore both elements should be prominent without competing with one another.

Bass in rap music is often accentuated as it gives the beat its important punch and impact. Therefore the 808-bass and kick tend to be the most prominent elements of the beat. (Shelvock 2016, 172.) While the low end is extremely important in hip-hop, it also takes a lot of space in the mix due to longer soundwaves (Rayden 2022). Having too much sub information can dominate a mix and make the other instruments appear weak, and thus finding a level where the bass feels strong without overpowering the mix can be challenging, although essential.

Right after the 808 and the kick, typically the snare or clap comes second in terms of the volume. Snares provide important rhythm and mid-range information to the beat, so they also need to be present in the mix (Gonsalves 2013). Although snares are an important and usually prominent element in the mix, they have the tendency to get in the way of vocals due to them occupying the same range of frequencies, which is why it must be made sure they are not too loud in the mix (Brathwaite 2019). While trap hi-hats are an important element to the genre and an important rhythmical element in the beat, they should generally be kept on a relatively low level in relation to other drums. Hi-hats mostly consisting of high-frequencies, they often cut through the mix more easily, but often also get over-emphasized in the mix unintentionally. Their balance should be adjusted

carefully, so that they don't distract the focus on the lead vocals or become harsh to the ear.

Typically, everything else in a hip-hop beat is presented in a lower volume, although the levels can always be determined by the preference of the engineer. Although the melodic elements, such as samples and synthesizers, are what give the beat personality and set the mood of the song, balance-wise they should sit on a level that still gives room for the vocal performance and not get in the way of the rhythmic elements. Any elements getting in the way of the vocal need to be adjusted so that they give required space for the vocal performance.

PICTURE 1. A typical balance hierarchy in a hip-hop track, vocals being the most prominent (Photo: Roope Ruusunen 2023).

4.3 Panning

Panning is a common tool in mixing, which refers to the process of placing and distributing individual tracks throughout the left and right channels of the stereo field, to create sense of width for the mix (Wainwright 2022). Panning is not only used to add separation between different elements on the stereo-field, but also to avoid potential clashing between different instruments. Although panning can be approached in different ways, traditionally in the mixing process the drums are panned either from the audience's perspective or the drummer's perspective (Houghton & Senior 2019).

Similarly, to how acoustic drums are usually panned, the kick and the snare drum as well as the 808 should generally be panned to the center, due to them being the most powerful drum elements of the track (Diaz 2013). Hi-hats and cymbals are often panned to slightly to either side (left or right), so that any clashing with

lead vocal could be avoided. However, trap-style hi-hats often do not statically stay in one place on the stereo-field, as it is common for the producer to program them so that they move around the stereo-field, which is why they must be approached case by case (Makethatbeat.com n.d.). Due to the variety of different sounds used in hip-hop productions, it is challenging to generalize how exactly other instruments should be panned, as it all depends on the sound and the context, but from a starting point it can be helpful to mostly reserve the center to the lead vocal, 808, kick and snare or clap (Diaz 2013). Ultimately, the end result should feel balanced in both ears, so that different elements are spread out on the stereo-field equally.

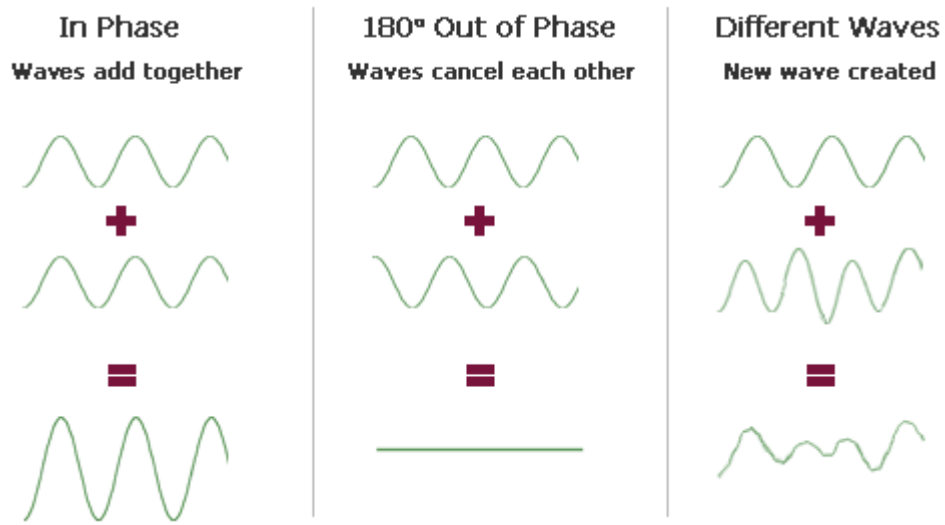
4.4 Low-end elements

Bass and sub frequencies are often emphasized in various styles of popular music, and rap music is no exception when it comes to a strong low end. With hip-hop mixes the goal is often to have a loud and powerful low-end which creates enough of impact and energetic feeling for the song (Diaz 2019). Due to the importance and emphasized presence of bass-frequencies in hip-hop, mixing the low-end can often require a lot of attention. Instruments that lie within this range of frequencies often cause frequency masking, clashing, or unintentional muddy sound because of long sound waves (Rayden 2022). The clarity of low-end frequency content can be a crucial sonic aspect of the music for the culture of hip-hop listeners, as they are for instance well known for popularizing subwoofers within car speaker systems (Shelvock 2016, 172).

The 808-style bass, originating from the Roland TR-808 drum synthesizer is arguably the cornerstone of all modern hip-hop and trap style production (PQ 2019). 808 is such a distinctive element that it can be considered one or if not the most important sound in a modern hip-hop instrumental. Typically, the low end of a hip-hop beat is solely produced by an 808, or the combination of the 808 and the kick drum. Due to the significant amount of information present in the low range of hip-hop kicks and 808s, they tend to conflict with each other and any other instruments occupying the same frequency range in the mix. This can cause the mix sound muddy, especially when the two are layered on top of each other.

(Brown 2021.) The kick and the 808 both being low-frequency dominant elements, it is crucial to carve space in the mix for each, so that the two elements can work together properly and provide as impactful low-end as possible. Generally, the only elements that should have sub-frequency content are the 808 and the kick, and sometimes certain sound effects. To create space for these low-end elements, removing any unnecessary low frequencies from the tracks that would not need this frequency range information, such as vocals and synthesizers, can reserve more space in the mix for the kick and the 808. (Lavoie 2021.) The use of an equalizer is often utilized with a high-pass filter setting, for making sure no unnecessary low frequencies are being present in the rest of the tracks.

Although the 808s are sometimes used without a kick drum, often they are layered with a kick to add more attack and punch to the low end (PQ 2019). However, with these two elements layered, due to their similarity in frequency content, problems may arise due to the phasing of the two sounds, which is why it can be important to check their phase relation. If two sounds in same frequency area are being out of phase, they cancel each other which result a lower perceived volume of the sound (PICTURE 2). When these two sounds are out of phase, it can detrimentally affect the punchiness and clarity of the low-end, which is crucial for the mix.



PICTURE 2. How soundwaves interact with each other (Media college n.d.).

When dealing with a kick and 808s that are out of phase, a common technique tried to improve the phasing is to switch the polarity of either of the two sounds (Johanson 2021). However, in most trap beats the 808 works as the bass of the song and does not stay in one note or frequency for the whole song, which depending on the track it might only partially fix the phase issue. While reversed polarity can fix the phase on certain notes, the 808 and kick might still be out of phase when different notes are being played on the 808. Due to this, lateral dynamic reduction is often implemented, by removing attack from the 808 to give room for the kick by creating clip fades on the audio, or with the use of sidechain compression, to ensure that the two elements are not sonically overlapping (Hodgson 2011). However, these techniques can affect the sound more drastically, which might or might not work for the song, depending on what the engineer wants to go for (Lavoie 2021). As there are several different types of samples used in hip-hop productions, there is not one single technique or pre-set that works on all occasions, so different techniques must be tried and listened case by case, before it can be determined which is the best way to mix them (Diaz 2019).

In terms of stereo image of the low-end elements, typically, sub frequencies and everything under 100 Hz should be mono because human hearing has difficulty perceiving the directionality of longer soundwaves (Rezar n.d.). While 808 and kick samples are often mono, some samples use effects such as chorus to widen the stereo image in attempt to make the sound feel bigger. However, any effects that change the phasing and stereo image of the sound can quickly cause phase issues and make the bass lose its impact, which is why it can be beneficial to removing stereo information from the sub frequencies, for example with the use of mid-side equalization.

Part of mixing is also considering how the mix translates in a different sound system, outside the studio monitoring setup. While sub frequencies are usually the most prominent frequency range of the 808, they also often need a lot of upper harmonics for them to stand out in the mix. (Diaz 2019.) Enhancing the harmonics and tone of the 808 is sometimes needed so that the 808s can be heard even with smaller sound systems, such as laptop speakers as they often

are not capable of producing low frequencies (Albanese 2020). Distortion or saturation can help adding those important mid-range frequencies that provide definition for the sound and tone, but also to create a more aggressive feel for the 808, which can bring energy to the mix. Therefore, saturation is often applied to the 808s in the mixing process.

4.5 Middle and high-frequency instruments

When it comes to human hearing, we tend to be the most sensitive to the mid-range of frequencies, around 2000 to 5000 Hz (Nave n.d.). As the human ear is tuned to this range of frequencies rather well, songs frequently tend to include multiple instruments in the mid-range. While the content within a hip-hop song varies from track to track, typically the mid-range of a hip-hop track includes snares, claps, and melodic instruments such as synthesizers, guitars, pianos and more. Due to the amount of information present in the mid-range, also given our sensitivity to these frequencies, there is often a considerable possibility that instruments within this range will mask one another.

Hip-hop as a genre places a lot of emphasis on the vocals, and a lot of the vocal intelligibility lies within the mid to high range of frequencies, so being mindful of the interaction of components in the same frequency can be crucial (Albanese 2020). Although snare drums provide important rhythmic function, they have the tendency to clash with vocals, as they usually share a lot of the same range of frequencies in the mid to high-mid area. Generally speaking, it is best to subtract certain frequencies instead of increasing them, as it will help locating muddy regions and eliminating them without increasing the sample's gain, and thus losing headroom (Mastering box n.d.). Having too many instruments on the same frequency band can also mask each other and reduce clarity of the vocals, but also appear harsh to the ear, which is why applying subtractive equalization in this area is often needed.

Also attenuating unnecessary frequency information from the low and high end from the mid-range heavy instruments can be essential for creating room for bass

elements but also creating room for cymbals and trap hi-hats which typically provide most of the high frequency information in modern hip-hop production. However if the instrumentation maintains an excessive amount of high-end or excitement, listeners may ultimately find it difficult to focus on the lead vocal and may instead direct their attention to the harsher or more exciting sound, which is why using an equalizer on any instruments that appear too bright or clash with the vocals can often be crucial (Shelvock 2016, 183).

5 HIP-HOP VOCALS

Although rap music as a genre has changed and diversified over the years, the emphasized presence of vocals still remains as one of the more apparent aspects that sonically sets hip-hop music apart from other genres of music (Shelvock 2016, 171). Mixing hip-hop relies heavily on vocal production and vocal mixing, as vocals are generally the key focus point of rap music. “The vocals are so important in this genre because they are carrying the song: a story is being told over a beat.” (Computer Music 2022). It is essential that no compromises are being made in the mix when it comes to the focus and clarity of the vocal, so the vocals should be treated as the lead instrument of the track and considered number one priority in the mix. The vocals are considered the most important instrument of a rap song, and thus they should be kept in front of the mix at all times. As there are variety of aesthetics and characteristics between different vocalists and hip-hop tracks, the different goals varying from project to project, makes it challenging to provide a best fit method for every situation (Shelvock 2016, 181). However, there are a few general attributes that can be said to characterize modern hip-hop vocals.

Modern rap vocals are usually well polished, clear, and crisp, and they need to stand out in the mix prominently. One of the most important aspects of a good vocal sound is starting with properly executed recording (Diaz 2016). If the vocals are improperly recorded in a noisy environment or a space with untreated acoustics, there are only a limited number of things that can be done to vocal takes even with the best available editing tools, techniques, or plugins, which is why the utilization of proper recording techniques and tools is crucial for a clean vocal sound. While everything related to the sound and quality of the vocals is greatly affected by the recording gear and environment, in order for the vocals to sit well in the mix and the context of a song, they need a decent amount of work in the post-production stage, which involves editing, processing and the use of different types of effects. These processes should essentially enhance the clarity, consistency, and intelligibility of the vocals, but also shape the tonal qualities and dynamic range fitting for the context, improve the tuning and timing, and add depth to the vocals with the use of effects.

There are a few different categories of which the vocal tracks of song fall into based on their purpose and characteristics, but also the way they are generally blended in the mix. The lead vocal is the primary vocal track that carries the song. It is the main vocal performance that is featured most prominently in the mix and is generally considered the most important element of a hip-hop song (Shelvock 2016, 181). In most cases, the lead vocal is mixed in a way that makes it the focal point of the song, allowing the listener to easily follow the lyrics, flow, and melody. In addition to the lead vocals, they are usually accompanied by different types of backing vocals, ranging from doubles that emphasize certain sections of the vocal performance, to adlibs, a type of backing vocals in hip-hop, which have a purpose of filling out silent spaces between vocal lines, as well as to bring energy and flavor to the song. Ad-libs are normally used in hip hop as “short pieces of improvisation, often in between verses and in the background; ad-libs are essentially used as fillers.” (Hand 2019). From the perspective of mixing, adlibs are often more distinctively processed and heavily manipulated with effects compared to lead vocals.

5.1 Editing

Although a clean, properly executed recording is the most important starting point for a good quality vocal sound, rap vocals tend to go through a lot of processing so they should be properly edited first, so that any possible noise or issues captured in the recordings can be fixed before going further into the mixing process, where these issues could potentially be amplified later on. (Sweetwater 2022). Vocal editing generally refers to the process of manipulating and improving the vocal recordings in a music production, which in addition to noise reduction, usually involves timing and pitch adjustment as well as gain automation. The goal of vocal editing is to achieve a polished, professional, and consistent vocal sound. (Senior 2022.)

Adjustments made to the timing or pitch of the vocal might sometimes also be necessary, depending on the feeling that is wanted to be achieved (Wainwright 2023). It needs to be determined what the goal for the vocal sound is, as for instance, sometimes a rapping flow that is slightly off the grid can be intentional.

However, in case the timing is off unintentionally, it might be best to move around specific segments of the vocal take, to make sure that the vocal delivery is tight.

5.2 Processing

Although there are various styles of rapping with some styles being more melodic, in terms of fundamental frequency (pitch perceptually), there tends to be little notation or prescription within typical rapping vocals, classifying it closer as speech rather than singing (Titze 2021). As rapping vocals are sonically closer to a spoken word rather than traditional style of singing, they need different type of attention in the way they are processed. Rapping vocals generally tends to be more articulate, rhythmical, and fast paced than singing, so not only does the dynamic processing require special attention, but also loud sibilancies and consonants can also be significantly more prominent in a recorded vocal. (Computer Music 2022.) Due to the emphasized presence and focus on vocals in hip-hop, clarity, intelligibility, and consistency are important factors in the vocal sound. In order for the listener to be able to easily follow the lyrics, a lot of clarity is expected from the vocal sound, so also proper equalization and moderate use of spatial effects are generally considered essential.

5.2.1 Tone and equalization

The purpose of equalization on vocals is to remove undesired sound and even out over-emphasized frequencies, but also accentuate certain characteristics of the tone of the vocal. Equalization can essentially be divided in two types: subtractive and additive. In terms of subtractive equalization in hip-hop, rolling out the low end, pulling back nasally sounding frequencies, boxy frequencies, and sibilance are the most important aspects of vocal equalization, according to mixing engineer Lu Diaz (n.d.). Applying a high-pass filter to remove excess low-end, typically anywhere from 80 to 180 Hz depending on the voice of the rapper, can help out clearing out muddiness, rumble and noise, but also create more space for the sub instruments. Although determining the frequency where a high-pass filter should be applied, is dependent on the vocalist, generally finding the

fundamental frequency or the lowest note of the vocal performance, is usually considered the area where the low frequencies should be cut, as any information underneath the fundamental is usually unnecessary for the vocal performance (Messitte 2022).

In addition to the use of a high pass filter, finding any frequency areas that are generally perceived as muddy, boxy, nasally, or harsh, should be looked into, and made sure they are not over emphasized, as they are generally considered unpleasant qualities within a vocal. While the excessive presence of low-mid frequencies, typically around 200–500 Hz is often considered to make the vocals sound muddy and boxy, also the tone of a vocal can become honky or nasal if the middle range area, typically around 800 Hz to 1.5 kHz is overemphasized, as the human nasal cavity resonates most strongly in this area of frequencies. However, the frequency band between 2 and 5 kilohertz is where human hearing is the most sensitive. Additionally, this is the frequency range where human speech is most intelligible. This calls for caution when using any EQ in this region of the frequency spectrum, as too much cutting can make it sound muffled, while too much boosting can make it harsh. Harshness can also occur around 5 to 8 kHz range as in this area most of the sibilancies are apparent. (Wainwright 2022.)

While subtractive equalization is more important to eliminating or attenuating frequencies that are considered unpleasant to the ear or counter-intuitive for the mix, additive equalization can help bringing out characteristics in the vocal that are important to the genre and the performer. After the problematic frequencies are dealt with, certain areas of frequencies might be boosted to accentuate their presence in the mix. Modern rap vocals tend to be very brightly mixed to enhance clarity, hence the high end is often accentuated. (Rayden 2023.) Frequency information above 10 kHz, frequently referred to as air, is often boosted to create a clear and pristine, modern high-end sheen for contemporary hip-hop vocals (Shelvock 2016, 184). For additive EQs, many engineers favor hardware-emulation EQs, as they can add character and flavor to the vocal. These EQ types emulate the warmth, personality, and sound of old-school hardware equalizers, and they are considered especially effective with a more musical

approach that emphasize or de-emphasize specific frequency bands for more clarity and punch, by adding simultaneously slight saturation for the signal.

Hip-hop vocals are often recorded through an analog pre-amp to add character to the recorded sound. Recording through analog gear adds saturation to the signal, which is often perceived as warmth and harmonic richness. However, when analog gear is not available, the same effect is often achieved in the mixing phase with the use of pre-amp or saturation plugins, as depending on how it is set, they can offer thickness, body, as well as a touch extra bite at the top-end of the vocal. (Zorn 2018.) Adding saturation to the vocals can essentially add more grit and texture to them, and with more extreme settings make the vocal feel more aggressive, which can work well on some tracks.

5.2.2 Dynamics and compression

The general consistency of amplitude is crucial in preserving vocal intelligibility over the course of a vocal track. To ensure that the vocal delivery is consistent in the mix, the dynamic range of the vocal should be well controlled, so notable use of compression is often a required practice in the vocal processing. While the goal is to keep the vocal at a stable level and prominently featured in the mix, over-compressing the vocal should be generally avoided. Hard consonants can cause small amplitude spikes to form at the beginning of words, which can lead to an imbalance between the initial spike and any succeeding lyrics (Shelvock 2016, 182). Due to the fast pace of rapping, it is preferable to use a compressor that can rapidly clamp down on prominent peaks and release quickly without draining the vitality from the vocals. While some may suggest heavily compressing the vocals, it might not always be ideal. To prevent ending up with an over-compressed vocal sound, many engineers also favor the utilization of serial compression, which involves incorporating multiple compressors in the chain, with each compressor applying only a few decibels of gain reduction. (Mcallister 2023.)

5.3 The use of effects in hip-hop vocals

Although the dynamics and the tonal qualities of a hip-hop vocal are often heavily processed, the typical hip-hop vocal sound is often relatively dry when it comes to spatial effects (Weiss 2021). While reverbs might not usually be all that present part of the lead vocal sound, they are commonly used on a slight level in the background to add some width and sense of space for the vocals. However, it is generally considered best to avoid reverbs with long tails as they can muddle the rhythm and articulation in rap vocals, which often move more quickly and have a stronger rhythmic function than sung vocals (Pro audio files 2011). While hip-hop vocals tend to work without any reverberation, when opting for a reverb on a lead vocal, it is best to stick to reverbs that have a shorter tail and some pre-delay to them, to avoid muddling of the vocal.

However, the type and amount of reverb used often varies with different contexts and styles of rapping. While a typical rapping lead vocal sound is usually dry in terms of reverberation, for instance more melodic styles that are not as fast-paced, implement the use of reverbs more prominently (Castillo 2020, 13). Also, adlibs are more commonly washed with larger amounts of reverb and delays, as they generally have more space in between of each. Essentially there are no restrictions on how to employ reverb and delay in adlibs, as there is much more room for effects. Large amounts of effects on adlibs can even reinforce the listener's perception of the contrast between the dry main vocal and adlib, which can be beneficial for the vocal mix. (Sweetwater 2022.)

Generally, the utilization of stereo delay is more common with lead vocals, due to their ability to add width without creating a washed sound for the vocal. However, a too prominent continuous delay can also muddle the mix and take away from the voice's directness, especially during faster-paced parts, which is why they are often used on a moderate level. (Zorn 2018.) It is also common for engineers to utilize so-called delay throw, which using automation only specific segments of the vocal track can be sent to the delay return track, in order to avoid clashing between the feedback of the delayed signal and the dry vocal signal (Castillo 2020, 13–14).

In addition to the use of delays and reverbs, modern hip-hop artists have become more and more accustomed to using Auto-Tune as a vocal effect in the recent years (Lobad 2020). Some of the biggest artists in the genre today, such as Travis Scott, Lil Uzi Vert, Migos and many others are known to heavily incorporate the use of Auto-Tune, to the point of it being an attribute of their artistic style. While Auto-Tune has advanced greatly since the breakthroughs of early adopters of the technology, such as Kanye West and T-Pain, also the utilization of melody within the rapping vocals is more apparent especially during hooks and choruses of contemporary hip-hop songs, which is why the distinguishment of singing and rapping is not as apparent as it may have been in the past.

While effects can be an important element of the vocal sound, they should be always selected in a way that suits that specific song. Generally, the use of effects such as delays and reverbs should be applied tastefully as using too many effects can reduce the clarity and intelligibility of the vocal performance and lyrics, which are especially important in the genre. (Pro audio files 2011.)

6 A WORK SAMPLE: MIIGKA - CREW

This topic dives into my workflow during the mixing process of the “CREW” album by Miigka (APPENDIX 1). The mixes for CREW album were completed in the fall of 2021 at my home studio. I started working with Miigka earlier that year while he was writing new music together with his producer. He was aiming to create an album that would have a more polished and professional sound, so it would sonically be on a par with the levels and standards of music industry. My attempt was to create mixes that take into consideration the attributes and aesthetics of hip-hop music of today, while aiming for clean and balanced mixes. In addition for being responsible for the mixes of the album, I also produced the beat on the track 1 “Kuuhun pakoon” as well as proceeded to do the final mastering of the album. Rest of the beats on the album were produced by producer Hiljane.

I essentially divided the mixing process into two parts: mixing the beat and mixing the vocals. To me it made more sense to mix the beat first and then start shaping the sound of the vocals to ensure that I would end up with a vocal sound that fit the aesthetics of the production. However, in terms of my workflow on the album, the mixing process was not always very linear when it came to different procedures of mixing as I often found myself having to go back and forth for example with balancing different elements and tweaking the equalizer settings, rather than completing one procedure before moving to the next one.

While the order of different procedures of the mixing process could also vary depending on the track, usually my first stage of mixing would be to edit the recorded tracks and then go into adjusting the level of each individual audio track to create a general balance that I found fitting for the song. Next, I would start panning out different elements on the stereo field to create space for the instruments and sense of width in the mix. After creating balancing and panning, I would go into processing the individual tracks with equalizers, saturation, compression, effects, and then apply bus processing to the mix buses. Lastly, I would level the individual tracks so that there would be around -6dBFS of headroom on the master channel.

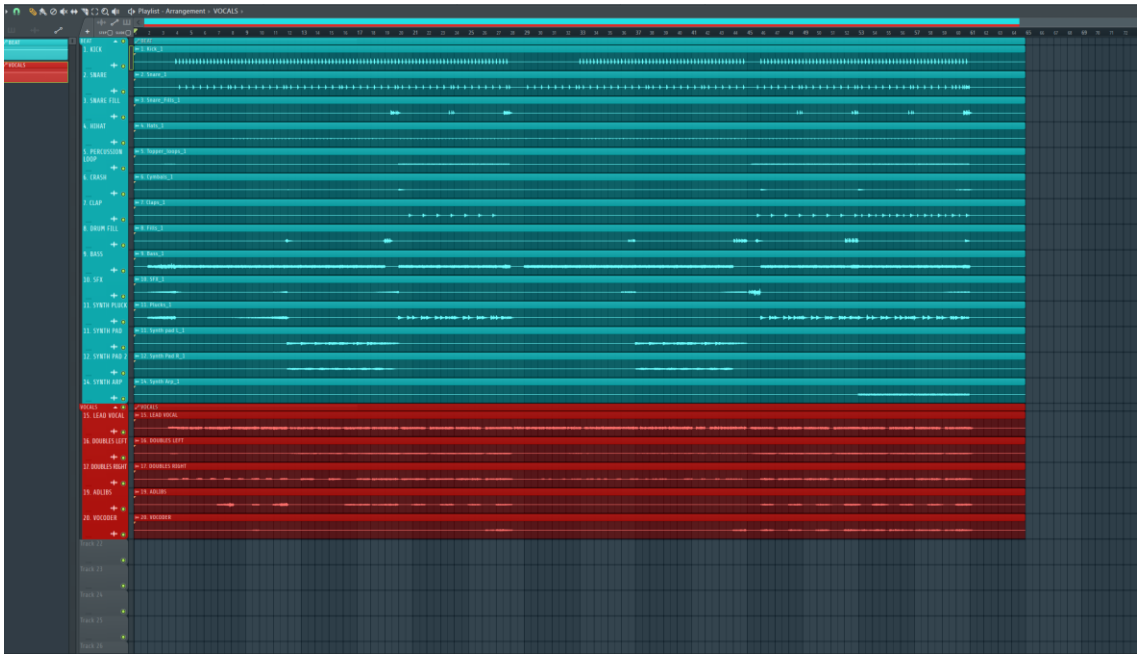
6.1 Mixing preparations and equipment

As I was working with a group of songs that were meant to be released as an album, I found it essential to take in consideration how the different tracks will sound together in the album context when they are played after each other. Having a unified sound on the record can be essential for the album listening experience, so that transitions between each track sound natural, but also for the overall cohesiveness of the record. To ensure this, I found that it was a good idea to aim for a similar balance and stick with the same set of tools, plugins, and techniques on each track of the album.

In terms of tools for mixing, everything related to the mixing process was done virtually “in the box”, using FL Studio 20 and various types of VST plugins to achieve the results. When it came to monitoring, I was constantly switching between studio monitors and headphones so that I could have a better idea of how the mixes translate with different sound systems. In addition, I would also reference the mixes with a portable speaker for checking the mono compatibility as well as to also checking how the low end of the tracks translate in a smaller sound system, which can be an important factor considering the popularity of these sound systems amongst consumers and the general importance of low-end elements in hip-hop music. I also found that it is essential to monitor the material with a sound system that can properly reproduce sub-frequencies, which can be vital in this genre of music and thus having a subwoofer can be ideal for the mixing process.

Regardless of the equipment used, before diving into the mixing process, I found it essential to first start by preparing the mixing session so that the mixing process could progress as efficiently as possible. I wanted to optimize the DAW session so that navigating through different parts and tracks in the project would be as seamless as possible. In addition to organizing, naming and color coding each track of the project, finding out the musical keys and scales of the songs and setting the right tempo for the project ensured that the tracks could be tuned properly and aligned to the grid of the song, which was especially important to vocal tuning as well as to the use of time-based effects, that are common in

mixing hip-hop (PICTURE 3). After organizing the mixing session, I ensured that the gain of each track was set to an ideal level (average of -18dBFs) so that there would be enough headroom to level and process the tracks.



PICTURE 3. Organizing, naming and color coding a multitrack in FL Studio mixing session (Photo: Roope Ruusunen 2023).

6.2 Beat mixing

In terms of mixing the beats on the album, what needed to be done varied a lot depending on the track. First and foremost, it was important to first listen to the material thoroughly and evaluate what needed to be done, so mixing could be done as efficiently as possible. In the process of evaluating the material I was aiming to identify any possible issues related to the tracks and fix them before going any further into mixing. I essentially wanted to check the sounds if they were good enough at their starting level and if they sounded cohesive together. In case there was an issue within an audio track, I needed to evaluate whether it can be improved with audio processing tools, or if it should be replaced completely with a new sample. However, I only ended up changing sounds necessary on a couple of occasions during the mixing process of the album. For example, I ended up changing the kick drum on the track 8 “Pään sisäl” as well as the snare drum on track 7 “Mr. Nice Guy” as either they would not cut through

the mix, or they would clash with other elements of the track regardless of processing efforts.

While I wanted the mixes to sound clean and balanced, I wanted the drums to hit hard and groove well, so I placed a lot of emphasis on the drum mixing. I also wanted to have a strong low end and carve the space required for the vocal in the frequency spectrum. While there was generally little processing that went into individual tracks, due to mostly well selected samples, I found the bus processing to be more important. However, low-end required most attention so finding proper techniques to mix the kick and the 808 was essential.

6.2.1 Kick and 808

Although a lot of the drum samples on the album could be considered mix ready, I found that small adjustments can sometimes improve the punchiness of the kicks and make them work better in the context of a mix. On many occasions boosting the kick's fundamental frequency (50 to 80 Hz depending on the sample) by a few dBs helped to give the kick a more impactful low-end. Also, cutting or lowering frequencies under the fundamental, was useful for clearing out unnecessary sub frequencies that would be clashing with the 808. Depending on the situation, I would sometimes also slightly increase frequencies around one octave (around 150 Hz) above the fundamental, to increase the so-called thump of the kick drum. In addition, I found slight saturation to help the kicks stand out a bit more in the mix so I would sometimes a slight amount of saturation to the mid to high range of the kicks with Saturn2 on a separate aux channel.

I wanted to make sure that the 808 has enough of sub but also mid-range frequencies for it to stand out in the mix. However, I typically only added a very small amount of processing to the 808s, from slight EQ adjustments on the low-mid range, added saturation on mid-range as well as multiband compression. In addition to attenuating the sub frequencies with a shelf EQ by a few dBs, with EQ I wanted to target and balance the different sub notes with a multiband compressor with long release setting, to make sure the sub sounds consistent throughout the track. I would also typically add some distortion or saturation

parallelly to the mid-range of the 808 to increase the presence and tonality of it, while preserving a clean, undistorted sub.

To achieve an impactful low-end, it was also important to make the kick and the 808 sit well together. To ensure that, I always tried to first switch the polarity of the kick drum to see if it made a difference. In addition, I typically would cut a few dBs of the kick drum's fundamental frequency from the 808 with a dynamic EQ. However, using a multiband compressor to sidechain the sub frequencies of the 808 with the kick drum, was sometimes an effective way to make these two elements sit better with each other, as it would be more transparent compared to ducking the 808 completely. To make the low-end sound tighter, I also made sure that the sub frequencies of the kick and 808 were mono with a mid-side EQ.

6.2.2 Snare and clap

When mixing snares and claps, I would often start by removing unnecessary low frequencies under the fundamental of the snare, which would typically be in the low-mid range around 200–300 Hz. I also found some snare samples to have excessive frequency build up around 2–3 kHz, which appeared harsh to the ear. Taming those frequencies down was essential to reduce harshness as well as to give room for the lead vocal. On tracks such as "Pään sisäl" there was both, a snare and a clap layered. As they were occupying mostly same range of frequencies, they had to be equalized so that there was space for each element. I would typically roll out more low-end from the clap as it had more function on the higher frequency range, while the snare would function more as the body and attack of the two sounds. However, dynamically the snare would not always be punchy enough so accentuating the attack with a transient shaper plugin was useful. Also using small amount of waveshape distortion was an effective way to enhance its' presence without lifting the volume too much. In addition, adding a short reverb made them sound thicker and more dimensional in the mix, while making them stand out behind the vocal.

6.2.3 Cymbals

The trap style hi-hats were most commonly used cymbals throughout the production of the album. While I wanted the hi-hats to sound aggressive and defined so they would cut through the mix easily, I wanted to avoid any harshness within the sound. As they naturally had a bright timbre to them, I did not find it necessary to do much boosting in the high end. Instead, I removed unimportant frequencies under 3k Hz with a high-pass filter and tamed some harsh resonances in the 5–8 kHz area with Soothe2. While some of the hi-hats had some panning automation printed on them, I usually liked to pan them slightly, around 10 % to left to avoid clashing with the lead vocal. I would generally use the same techniques on other cymbals such as crashes and open hi-hat, however I would often pan them on the right side instead, to make the cymbal panning sound more balanced.

6.2.4 Drum bus

I summed each drum track to a single stereo bus track, which I could use to process all the drums simultaneously within a single fader and dedicated effects slots. On the drum bus, I would typically add a bus compressor and a soft clipper. I found that compressing the drum bus slightly, with 1–2dB of gain reduction, made the drums feel slightly more cohesive and glued together. In addition to the use of a bus compressor I wanted to use a soft clipper instead of a limiter, as it provided some extra grit to the drums by distorting the transients of the drums, which appeared to make the drums sound punchier and more aggressive, which worked well with the style of production of the album.

6.2.5 Samples, synths & melodic instruments

Typically, the melodic elements such as synthesizers and samples from splice were mostly providing mid and high frequency information in the mix. Due to them occupying same range of frequencies and often clashing with the vocal, mixing them often came down to carving some space for the vocals. Also removing harsh frequencies and unnecessary low-end with a subtractive EQ was essential. To

further create space for the vocals, I often found myself sidechaining the melodic elements to the vocal, so those clashing frequencies could be ducked according to the vocal performance.

6.2.6 Beat effects

Although instrumentals in modern hip-hop tend to favor simplicity, I found that adding effects to the instrumental bus was often an effective way to add to the dynamics to the arrangement of the song. Momentarily narrowing down frequency content and stereo field of the beat with the use of filters and imagers could create more distinguishment for different parts of the song. For example, I typically would turn on a band-pass filter on the instrumental bus during the intro and turn the filter off when the following part such as chorus starts. Also, the stereo width of the track I would often automate in a similar way, for example having it narrowed down in the pre-chorus to open it back up in the chorus. These techniques could give more impact when the effect was turned off, for example at the start of a chorus. In addition to the use of filters, I often used beat stops on the instrumental bus. I used Tape Stop plugin by Kilohearts to add beat stops during important punch lines, so the vocals could be given all of the attention momentarily, while the instrumental would become muted in the background. On some occasions I would also use Shaperbox2 to create other time-based effects such beat stutters, half-time and reverse effects to add some details to the beat and make it rhythmically more interesting.

6.3 Mixing and editing vocals

I wanted to go for a modern vocal sound that have bright top end, punchy dynamics, well controlled sibilancies and a saturated mid-range. I wanted to minimize noise, harshness and muddiness to make sure that the vocals are well polished, so they could be prominently presented in the mix. The vocals needed to sound intelligible and upfront, but they also needed to have the characteristic to match with the trap style production on the album.

I was sent several takes of the same vocal performance and asked to select my preferred takes. To create the best possible lead vocal track, I ended up creating vocal comps by combining different takes from the folder I received. After creating a lead vocal track I was happy with, I would make sure that the timing of the lead vocal was right and then proceed to align the timing of the backing vocals to the lead vocal, to ensure that the vocal delivery was tight. While most lead vocals did not need much adjustment, the doubles and backing vocals were occasionally off, so aligning them with the lead vocal was important to create a unified, tight feeling for all of the vocal tracks.

After vocal comping and adjusting the timing of the vocals, I manually deleted unwanted parts of the audio tracks as well as proceeded to use noise gate to filter out any noise within the vocal tracks. To ensure that the general amplitude of the recorded vocals would stay consistent throughout the vocal performances, I also found it necessary to apply gain automation to the vocals to bring down some more prominent peaks but also to lift up more quiet parts of the vocal, to create more dynamically cohesive sounding takes. While breaths captured on the recording had somewhat important rhythmic function with some of the tracks, I noticed them becoming overamplified during compression, so doing manual clip gaining to lower their presence in the mix was effective to avoiding their overemphasis.

6.3.1 Lead vocals

I wanted to stick with the same type of vocal chain throughout the mixing process of the album to create cohesive vocal sound for all the tracks on the record. The typical lead vocal signal chain on the album tracks consisted of a set of audio-processing tools, including equalizers, compressors, de-essers and saturation.

I wanted to use Auto-Tune especially with the more melodic tracks of the album, such as “Mr. Nice Guy” and “Unimaailma”, which included more melodic style of rapping. I used an Auto-Tune plugin by Antares to create this effect on the album. Whenever I used Auto-Tune, it would generally be the first plugin on the chain to minimize any possible latency issues when multiple audio processors are run

simultaneously. Most important part about using an Auto-Tune plugin was to select the right scale and key in the settings so that the plugin can tune the vocals to the right notes matching these attributes of the song. Another important parameter within the plugin is the re-tune speed, which would define how quickly the pitch correction is applied to the incoming signal. Generally, the faster the re-tune speed was set to, the less natural the vocal would sound melodically. While the purpose of Auto-Tune was to create a distinct effect instead of creating a natural sounding vocal, I often preferred a retune speed setting somewhere around two o´clock position to be suitable, as having the speed too fast would not give the suitable results on lead vocals. However, using slightly faster retune speed setting would often work better with adlibs.

After Auto-tune, I would often run the vocals through a pre-amp emulating plugin Virtual Channel by Slate Digital to add a slight amount of saturation to the vocal signal to add some warmth and harmonics to the vocal. After saturation I would start removing and attenuating problematic areas of frequencies. As the fundamental frequency of the vocals was usually around 100 Hz, I used a high pass filter in that area to get rid of unnecessary low-end. In addition, I did a dynamic low shelf around 300 Hz to attenuate the lower harmonics as they were at times too prominent in the mix. I also lowered some nasally frequencies around 1.2 kHz with a bell-shaped EQ curve. In addition, I used two de-essers, one before compression and one after additive EQ to ensure I had a good control over the sibilancies, which were mostly targeted around 7–8 kHz area. For the subtractive EQ processing I used Fabfilter's Pro-Q3 and Pro-DS for de-essing. To give the vocals a bit more presence in the mix, I first boosted a bit of high-mids around 3 kHz and then added a high shelf around 10k to accentuate the top end of the vocal.

To make sure that the vocals were prominent and had a steady amplitude, I typically would use a set of three compressors, all doing only a few dBs of gain reduction. The first compressor on the chain was an analogue style tube compressor Klanghelm MJUC, then a traditional digital compressor Pro-C2 and lastly a multiband compressor Pro-MB.

6.3.2 Backing vocals and adlibs

While I applied the same principles of mixing lead vocals to adlibs as well, I found that it was good to intentionally create a bit of separation between the sound of lead vocals and adlibs by processing the adlibs in a slightly different way, in order for them to stand out in the mix. One of the more obvious differences in the way I processed the adlibs versus the lead vocals, was in the EQ settings. I typically would roll out a good amount of the low and high frequencies with a steep filter curve to create almost like a telephone-effect. I used a high-pass filter around 300–400 Hz, and low-pass filter above 7–8 kHz to achieve this result. I also found that being more heavy-handed with saturation and compression on the adlibs would add more grit, texture and overall a more distinctive feel to them. Depending on the type of adlibs, I would often use Auto-Tune on them more prominently and turn up the re-tune speed in the settings to create a more robotic sounding effect for them. With adlibs there was also much more room to play with reverbs and delays, so I added a plenty of plate reverb and a ping-pong stereo delay to create a bigger space behind them. Although I wanted the adlibs to have a distinct sound, I wanted to keep the attention of the listener on the lead vocals, so keeping the volume of the adlibs in a suitably lower level in ratio to the leads was an essential. To further avoid the adlibs and the lead vocals clashing, I was usually panning the adlibs slightly to the side, around 15–20 %.

I would typically process the backing vocals in similar way as the lead vocal, so they would have same sort of characteristics, although I would typically attenuate the lows and high end but also their overall presence in the mix. Having too prominent lower harmonics on the backing vocals seemed to make the low end of the vocals sound muddy but also having too prominent high frequencies would make the overall vocal mix too bright. I would typically use a high-pass filter on the doubles as high as 300 Hz and attenuate the top end with a shelf EQ.

Lastly, I would route all of the vocal tracks to a vocal bus where I would apply resonance reduction with Soothe 2 as well as bus compression with Solid Bus Compressor to reduce any slight harshness and to make the vocals sound more glued together.

6.3.3 Vocal effects

To enhance depth and spatial perception of the vocals, I wanted to add various types of effects on them. Although on the more melodic tracks and vocal sections, such as choruses and adlibs I would use reverbs more prominently, I wanted most of the lead vocals on the album to be quite dry especially during verses as I wanted the vocals sound as punchy and intelligible as possible. However, I would still use slight amount of reverb on lead vocals, on a level that was barely noticeable to create a bit of depth for the vocals. I opted to use Valhalla's Vintage Verb with a plate setting as my main reverb plugin of the album. While most of the time I was sticking to a reverb with a shorter decay time, on slower melodic tracks such as "Unimaailma", I used longer reverbs as they fit with the more melodic, slower-paced rapping and the context of the song. However, generally I preferred to use stereo delay as an effect more prominently throughout the mixing process of the album, as I found that it was able to add width for the vocal while preserving clarity. For the delay effect I used H-Delay by Waves, often with a short feedback time in a ping-pong setting, while removing low and high frequencies with the built-in filter.

Automation was possibly the most important aspect of blending the effects on the vocals, as it would help to preserve more control over the dry to wet ratio and also the decay, feedback and time functions of the effects. The intelligibility of the vocal being such an important factor, I often utilized delay and reverb throws more prominently instead of using a constant send level on vocals to avoid muddling and to create more movement within the effects.

DISCUSSION

This bachelor's thesis aimed to highlight which sonic characteristics are generally expected from a hip-hop song within the culture of hip-hop listeners. I attempted to utilize this knowledge as a general guideline on how to approach the mixing process of the CREW-album, to ensure that I would take in consideration the key characteristics of modern hip-hop.

In addition to considering the general expectations of the genre, it was also essential to understand the artistic and aesthetic goals of the specific project. As there are various aesthetics within hip-hop, it can be challenging to provide a method that would work on every project. However, working closely with the artist and the producer and having a good communication throughout the process ensured that I was able to create mixes according to their style and taste. While I found myself using some commonly favored techniques amongst hip-hop engineers, treating the tracks according to the material while finding my own creative approaches in the specifics of post-processing was important for creating a distinct sound for the album.

As a lot of time has passed since the practical part of the thesis took place, I have had time to reflect back on the mixing process of the album. While there are a few aspects about the mixes I probably would approach differently now, after revisiting the mixes, I was still generally satisfied with the results as I think the sound and essence of modern hip-hop was captured in the mixes throughout the album. Ultimately, working on the CREW-album demonstrated the most important aspects of mixing modern hip-hop music, while the project also worked as a tremendous practical learning experience.

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APPENDICES

Appendix 1. Miigka – CREW

https://soundcloud.com/crew-album/sets/miigka-crew/s-kyU39tPltX4?si=c96e025c6d494f3c8deffc2de898ab54&utm_source=clipboard&utm_medium=text&utm_campaign=social_sharing