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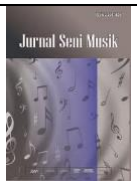

Application of Multitrack Mixing in Dangdut Music: An Analysis of Jujuk Eksa Technique

Dony Hutomo Ardi ✉[1]
Fakultas Bahasa dan Seni, Universitas Negeri Semarang, Indonesia

Mochammad Usman Wafa
Fakultas Bahasa dan Seni, Universitas Negeri Semarang, Indonesia

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Abstract

This study aims to describe the analysis of Jujuk Eksa's techniques in applying multitrack mixing to dangdut music, emphasizing the genre's distinctive use of the kendang drum. Jujuk Eksa is a sound engineer who specializes in music production across various genres, including dangdut, keroncong, congdut, and Javanese langgam. His extensive experience includes collaborations with renowned national musicians such as Didi Kempot, Nurhana, and Soleh Akbar. This research employs a qualitative descriptive method, integrating a musicological approach to examine dangdut music and a technological approach to analyze mixing techniques. The study involves in-depth interviews with Jujuk Eksa, direct observation of the mixing process, and documentation analysis of mixing data. The findings reveal three key aspects: (1) Preparation, which includes ensuring data feasibility, determining the appropriate formula, and considering musical arrangements; (2) Treatment, comprising essential mixing procedures such as setting levels, equalization, dynamic processing, reverb effects, harmonic enhancement, and pre-mastering, which encompasses mixdown and normalization as the finalization process; and (3) Mixing Focus, highlighting the critical role of leveling and panning in the multitrack mixing process of dangdut music. Overall, this research underscores the significance of precise mixing techniques in preserving the unique characteristics of dangdut music production.

✉ Corresponding Author:
Email : 1. donyhutomo@student.unnes.ac.id
2. usmanwafa@mail.unnes.ac.id

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INTRODUCTION

Technological advancements have significantly transformed the music recording industry, shifting from analog to digital systems. Analog recording works by converting electrical signals into magnetic energy stored on tape (Huber Miles & Runstein, 2018). In contrast, digital recording involves encoding, processing, storing, and reproducing numerical representations of analog signals using a binary number system. The adoption of digital systems, particularly Digital Audio Workstations (DAWs), has replaced traditional Analog Tape Recorders (ATRs), enabling more efficient and flexible music production processes. One of the critical aspects of digital recording is multitrack mixing, which has become an essential step in contemporary music production.

Multitrack recording, as defined by Gallagher, is a recording process that consists of multiple tracks containing individual musical performances, which are subsequently mixed to create a final audio production (Gallagher, 2009). Mixing, according to Izhaki, (2017), refers to the process where multitrack materials whether recorded, sampled, or synthesized are balanced, processed, and combined into a multichannel format, most commonly stereo. Furthermore, mixing involves specialized treatments applied to each track to achieve the desired sonic outcome. In this context, treatment refers to the specific actions or effects applied to sound elements to enhance audio quality (KBBI, 2016). In summary, multitrack mixing entails processing multitrack material by applying unique treatments to each track and subsequently merging them into a multichannel format, typically stereo (2-channel).

Dangdut music emerged in Indonesia during the 1970s, with its name deriving from the characteristic sounds of the traditional hand drum (kendang), played using glissando techniques to produce the distinctive "dang" and "dut" sounds (Muttaqin, 2006). Over time, dangdut has undergone significant cultural and musical acculturation, incorporating elements from rock, pop, keroncong, reggae, and electronic dance music (EDM). Several notable examples of such fusion include "Banyak Jalan Menuju Roma" by Soneta, "Kejora" by Lesti, and "Cidro" by Didi Kempot.

One of the prominent sound engineers specializing in dangdut music production is Jujuk Eksa, the founder of JX Studio. JX Studio serves as a production hub for various music genres, including dangdut, keroncong, congdut, and Javanese langgam. The studio is equipped with both analog and digital recording tools, including vintage musical instruments such as guitars, bass guitars, and keyboards. The combination of analog and digital devices at JX Studio, alongside the expertise of skilled engineers, plays a crucial role in achieving high-quality recordings tailored to clients' artistic preferences. Among the technical approaches utilized in the studio is multitrack mixing, a fundamental method for crafting polished audio productions.

Wierstorf et al., (2018) describe multitrack recording as capturing multiple elements, including different instruments and vocals, into separate tracks. This perspective is reinforced by Böhm et al., (2020), who conducted an orchestral recording project that generated 61 multitrack recordings for individual instrumental sections, including stereo mixes with artificial room effects. Given the significance of multitrack recording in contemporary music production, this study investigates the multitrack mixing techniques employed by Jujuk Eksa in dangdut music production. Specifically, the research aims to demonstrate and substantiate the role of multitrack mixing in shaping the final sound of dangdut music.

Thus, the research addresses the following questions: (1) What are the multitrack mixing techniques used by Jujuk Eksa in dangdut music production?

and (2) What specific treatments are applied during the multitrack mixing process in dangdut music at JX Studio.

METHOD

This study employs a qualitative case study research approach presented descriptively, integrating both musicological and technological perspectives (Yin, 2011). The musicological approach is utilized to examine dangdut music in general, while the technological approach is employed to analyze mixing techniques. Data collection methods include interviews, observations, and document analysis.

Primary data is obtained through direct interviews with Jujuk Eksa as the key informant and Anton Soneta as a supporting informant. Observational techniques involve visiting JX Studio to observe the mixing process firsthand. Additionally, document analysis includes reviewing photographs and technical data related to the mixing techniques applied by Jujuk Eksa.

To ensure data validity, this study employs triangulation of theory and sources. Several journal articles and books are referenced as theoretical foundations for the study. Furthermore, the findings from different informants are cross-verified through comparative analysis to ensure the accuracy and credibility of the information obtained.

RESULT AND DISCUSSION

As a case study, this research examines the dangdut song Senyum, composed by Jujuk Eksa and performed by Anton Soneta. The song is set in the key of F major with a 4/4 time signature. Structurally, Senyum follows a ternary form (A, B, C) with additional sections, including an introduction, interlude, and coda. According to Prier, (2017), a ternary form consists of three distinct phrases or periods.

In terms of multitrack composition, Jujuk Eksa incorporates various instrumental elements, including drums, kendang, bass, keyboard, guitar, percussion, mandolin, backing vocals, flute, brass section, and lead vocals. Notably, the kendang in this recording does not employ the conventional two-drum setup (tak and dut); instead, it features various playing techniques, as the kendang sound used in Senyum is derived from pre-sampled audio rather than a direct recording of two physical drums. Additionally, certain instrumental elements appear on multiple tracks, indicating variations in octave, harmony, playing proportions, or specific treatments applied during the mixing process.

According to Jujuk Eksa, mixing refers to the process of blending audio elements, but it must be accompanied by a comprehensive understanding of music production, including organology, composition, arrangement, harmony, solfeggio, and proficiency in one or more musical instruments. Jujuk Eksa emphasizes that mixing plays a crucial role in determining the final outcome of a musical production. It requires careful attention to the dynamic transitions between different sections of a song.

Jujuk Eksa further asserts that mixing is the responsibility of the composer and arranger, as they possess the most in-depth understanding of the musical piece being produced. Consequently, the sound engineer is accountable to the composer and arranger, while the composer and arranger, in turn, are responsible to the music producer. Additionally, Jujuk Eksa highlights that mixing is a process applied to already prepared sources, meaning that at this stage, the sound engineer should no longer engage in sound design—such as applying delay effects, analog simulation, amplifier simulation, pitch and time correction, or spatial processing.

Jujuk Eksa's approach to multitrack mixing in dangdut music follows several stages: preparation,

treatment through the mixing procedure, and pre-mastering.

I. Preparation

The first step in the mixing process involves ensuring that the recorded data is suitable for mixing. According to Jujuk Eksa, high-quality audio data must have an adequate level (0 dBVU) and be recorded correctly. If the recorded material lacks sufficient level, he enhances it to facilitate processing and achieve a more powerful sound. However, even properly recorded audio sources may not always blend seamlessly during mixing. Some elements may sound well in isolation (solo) but become incompatible when combined with other tracks—an example of this is the mandolin.

Jujuk Eksa differentiates between elements that should be dominant and those that should remain subtle. When encountering incompatibilities, he prioritizes maintaining balance by ensuring that dominant elements remain prominent while minimizing the presence of elements that do not blend well. This aligns with Savage's assertion that the primary objective of mixing is to establish level relationships among all elements (Savage, 2014).

In mixing, sound engineers follow specific formulas tailored to the genre of the music, determining which elements should be dominant and which should serve as supporting components. In the context of dangdut music, Jujuk Eksa identifies three key elements that must serve as the foundation of the mix: kendang (drum), vocals, and suling (flute).

Jujuk Eksa also emphasizes that the mixing process should adhere to the arranger's artistic vision, as the arranger is responsible for determining the overall sound of the composition. The mixing process must align with the arranger's intent, particularly in how different elements are positioned within the mix and which elements should be given prominence. This view is consistent with Savage's statement that mixing must maintain a strong relationship with musical arrangement. However, since Jujuk Eksa serves as both the composer and arranger in many of his works, he has complete authority over the final artistic direction of the mix. Anton Soneta, the lead vocalist, similarly states that the final production decisions rest entirely with Jujuk Eksa.

Furthermore, when working on projects where he is not the composer or arranger, Jujuk Eksa, in his role as a sound engineer, always ensures clarity on the song's priorities. He consistently inquires about which elements should take precedence, ensuring that the mixing process aligns with the intended artistic vision of the song.

II. Treatment Through the Mixing Procedure

1. Setting Levels

According to Savage, a sound engineer must be able to determine which elements should be placed at the forefront of the mix and which should remain in the background. In setting levels, Jujuk Eksa does not rely solely on auditory perception but also utilizes a Volume Unit (VU) meter analyzer. A sound that appears loud to the ear does not necessarily reach the desired target on the VU meter, requiring an adjustment in level. In dangdut music, dominant elements must typically be set around 0 dBVU or higher, with other elements adjusted accordingly.

Jujuk Eksa also acknowledges that levels do not always need to remain strictly at 0 dBVU. He considers occasional peaks or near-peak levels acceptable, as they contribute to the dynamic quality of the music. Such peaks can be managed through compression techniques. In dangdut mixing, Jujuk Eksa prioritizes kendang (drum), vocals, and suling (flute), ensuring they stand out more prominently in the mix compared to other musical instruments. He particularly emphasizes the low-frequency sound of the kendang,

specifically the dut sound, by placing it at the highest level in the mix.

This approach aligns with Setiawan, (1999) explanation that the term dangdut originates from the distinctive drum sounds found in traditional Indian music, particularly the tabla. The kendang in dangdut music replicates this characteristic sound, producing the distinctive nduut tone.

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2. Panning

The term pan is derived from panorama, a concept originating from the film industry, where a camera is panned to capture a wide scene. In audio production, pan control is used to position sound or tracks to the left or right in a stereo field (Gallagher, 2009).

Jujuk Eksa follows a straightforward panning reference by envisioning how music is presented live on stage. While live instrument placement follows the physical stage setup, mixing within a Digital Audio Workstation (DAW) allows greater flexibility. However, Jujuk Eksa emphasizes two key aspects of panning: foundation and stereo image. The foundation consists of core elements that must remain centered to provide structural support and definition to the music, including vocals, suling, kendang, kick drum, hi-hat, bass, timpani, bells, and lead guitar. The stereo image, on the other hand, consists of complementary elements placed to the left and right to create a wider spatial impression, such as tom drums, cymbals (overheads), tambourine, shaker, backing vocals, brass section, rhythm guitar, and keyboard.

3. Equalizing

An equalizer (EQ) is used to modify the frequency response of an audio system or shape the tonal characteristics of a signal. The term equalizer is commonly abbreviated as EQ (Gallagher, 2009). Jujuk Eksa employs EQ to adjust the frequency balance within a track by increasing or decreasing gain at specific frequencies as needed. Additionally, EQ is utilized when a particular sound fails to emerge clearly by volume adjustments alone, such as in vocals.

Based on research documentation, Jujuk Eksa applies minimal EQ processing during dangdut mixing, meaning not all tracks undergo equalization. In the song Senyum, EQ is applied primarily to enhance high-frequency content, thereby

improving clarity. Most tracks remain untouched by EQ; out of 42 tracks, only 22 undergo equalization. Jujuk Eksa employs two different types of EQ plugins: Voxengo Marvel GEQ, a graphic equalizer, and Avid Channel Strip, a parametric equalizer.

4. Dynamics Processing

Dynamic processing is used to control the dynamic range of an audio signal, ensuring a more consistent sound through compression or limiting (Gallagher, 2009; Izhaki, 2017; Savage, 2011). However, in dangdut music, Jujuk Eksa employs minimal compression due to the genre's naturally wide dynamic range, which includes dynamic accents that should remain expressive. Excessive dynamic control can make the music sound flat, overly compressed, and lacking in character.

Not all tracks in dangdut music undergo dynamic processing. In certain cases, Jujuk Eksa avoids compression to preserve the natural dynamics of specific elements. A limiter is used only when a kendang player exhibits an overly broad dynamic range, ensuring that peaks do not exceed acceptable levels. If compression and limiting prove insufficient, Jujuk Eksa manually applies volume automation to control excessive peaks.

In the mixing process for Senyum, only one track—Mandolin 1—undergoes compression due to inconsistencies in the mandolin's string age, which affected tonal balance. In addition to using compressors, Jujuk Eksa applies volume automation to fine-tune audio dynamics within individual tracks. Volume automation allows parameter adjustments in real-time as the mix plays (Savage, 2014). Automation tools in DAWs enable engineers to alter volume settings dynamically according to pre-defined curves and control points. In Senyum, volume automation is prominently applied to Strings 1 and Strings 2, while other tracks receive minor automation, typically at the beginning or end of waveforms. In dangdut mixing, Jujuk Eksa utilizes volume automation for manual dynamic control, preferring this method over compressors, which apply uniform processing across all dynamics.

5. Effects Processing: Reverb

Reverb is the persistence of sound within a space after the original sound source has stopped. In audio mixing, engineers use hardware or software plugins to emulate this effect (Gallagher, 2009; Izhaki, 2017).

Jujuk Eksa primarily employs four types of reverb: hall, arena, room, and plate. He utilizes various plugins to achieve different reverb characteristics, including Avid ReVibe II, Avid Reverb One, Acon Digital Verberate Basic 2, Protoverb, Avid Studio Reverb, and TAL Reverb 4. In dangdut music, reverb is applied to enhance spatial depth, ensuring that sounds blend harmoniously within the same perceived space. Reverb also prevents the audio from sounding overly dry and can be used to add resonance to the kendang's tak sound.

6. Effects Processing: Delay

Delay creates repeated echoes of a sound by delaying its playback (Savage, 2014). In dangdut music, Jujuk Eksa applies delay effects to the lead guitar and suling to enrich their tonal character and enhance their presence. Delay settings are synchronized with the song's tempo, with only minimal intensity to prevent excessive prominence.

In the case of Senyum, delay was applied during the recording stage rather than during mixing, meaning no additional delay processing was required in post-production. According to Savage (2014), beyond standard effects such as EQ, dynamics, reverb, and delay, other processors include analog simulation, amplifier and speaker simulation, Lo-Fi aesthetic, pitch and time fixing, pitch and rhythmic enhancement, and spatial

processing. However, Jujuk Eksa excludes these processes from mixing, as most were already addressed during tracking and editing, except for harmonic enhancement.

7. Harmonic Enhancer

A harmonic enhancer or exciter is used to introduce harmonic frequencies, enhancing brightness and clarity. This technique is similar to adding saturation to an audio signal but in a more controlled manner (Izhaki, 2017). According to Joshi (2022), exciters primarily operate in the high-frequency range (above 3 kHz), adding harmonic content to improve clarity. Additionally, certain exciters enhance low-frequency harmonics to create a fuller sound.

In dangdut mixing, Jujuk Eksa employs exciter plugins to compensate for narrow frequency ranges in both low and high frequencies. Specifically, he applies Aphex Aural Exciter to Mandolin 1 for a brighter tone and Aphex Big Bottom to the bass track to achieve deeper low-end resonance.

III. Pre-Mastering

During the pre-mastering stage, Jujuk Eksa performs mixdown and normalizing on the completed mix. According to Gallagher (2009), mixdown is the final step in audio production, where all individual tracks and signals are combined into a single output file—whether mono, stereo, or surround—for mastering and distribution.

Following mixdown, Jujuk Eksa applies normalizing, which raises the overall audio level to its maximum peak at 0 dBFS (Gallagher, 2009). He normalizes 99% of the mixed audio before rendering a final mixdown, ensuring the mix achieves an optimal level.

IV. Jujuk Eksa's Approach to Mixing in Genres Beyond Dangdut

In addition to dangdut, Jujuk Eksa has also worked on other musical genres, including kasidah, keroncong, congdut, and langgam Jawa. For him, the technical aspects of mixing across different genres remain largely similar, with the primary distinction being the formula, particularly in terms of level balance. His approach is relatively straightforward. He adjusts the dominant elements within each genre while ensuring vocal prominence remains consistent.

The concept of dominance in this context refers to level balance, meaning that the dominant elements in a given genre are mixed at a higher level compared to others. In kasidah, the balance is similar to that of dangdut, with kendang, vocals, and suling serving as the dominant elements. In keroncong, the dominant elements are cak, cuk, and cello, while reverb is minimized to preserve the acoustic character of the traditional keroncong instruments. Congdut, a fusion of keroncong and dangdut, maintains cak, cuk, kendang, and suling as its dominant elements. Meanwhile, in langgam Jawa, the dominant focus is placed solely on the vocals.

CONCLUSION

The mixing process in dangdut music requires a distinct approach compared to other musical genres. In terms of leveling, kendang, vocals, and suling are prioritized as defining characteristics of dangdut. Regarding stereo imaging, instrument positioning in the mix is based on their placement in a live performance setting.

Jujuk Eksa's approach to multitrack mixing in dangdut follows a structured process consisting of three key stages: preparation, treatment through the mixing procedure, and pre-mastering. The preparation phase involves assessing the suitability of recorded data for mixing, determining the formula based on the genre, and maintaining coherence between the mixing process and the musical arrangement.

The treatment phase includes several key mixing procedures. Setting

levels involves adjusting the prominence of dominant elements to ensure balance and clarity within the mix. Panning is used to distribute audio elements within the stereo field, creating a natural and immersive spatial arrangement. Equalizing enhances or adjusts the frequency balance of individual tracks, ensuring that each element occupies its appropriate spectral range. Dynamics processing manages the dynamic range through techniques such as compression and limiting, maintaining consistency while preserving the genre's expressive qualities. Reverb effects are applied to enhance spatial depth and cohesion, carefully tailored to suit the characteristics of each genre. Harmonic enhancement improves clarity and warmth by introducing controlled harmonic frequencies, enriching the overall tonal quality of the mix.

The pre-mastering phase consists of the mixdown process exporting all tracks into a final audio file and normalizing to achieve optimal output levels.

Jujuk Eksa employs a similar technical approach when mixing other genres beyond dangdut, with the primary distinction lying in the level balance of the dominant elements within each genre

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