

“WILET” AS THE TEMPORAL FRAMEWORK OF *GENDING* IN SUNDANESE *KARAWITAN*

Toni Setiawan Sutanto^{1*}; Marsel Ridky Maulana²

¹Musik, Fakultas Pendidikan Seni dan Desain, Universitas Pendidikan Indonesia

²Pendidikan Seni, Sekolah Pascasarjana, Universitas Pendidikan Indonesia
Bandung, Indonesia 40154

¹tonisetiawans@upi.edu; ²ridkymarsel@upi.edu

Received: 21st August 2025/ Revised: 27th December 2025/ Accepted: 21st January 2026

How to Cite: Sutanto, T. S., & Maulan, M. R. (2026). “Wilet” as the temporal framework of *gending* in Sundanese *karawitan*. *Humaniorajicas*, 17(2), 189-200. <https://doi.org/10.21512/humaniora.v17i2.14247>

ABSTRACT

In Sundanese karawitan, the concept of wilet holds a central role as it defines the temporal and rhythmic framework of gending compositions. Several hierarchical levels of wilet exist, namely sawilet, dua wilet, and opat wilet, each indicating variations in the number of beats, tempo, and the span of time between goongan. This research seeks to investigate the temporal-rhythmic structure of Sundanese karawitan by analyzing these levels of wilet and their application across different gending forms. Employing a descriptive-analytical design with a musicological perspective, the study draws on data from a literature review, performance observations, and musical transcription analysis. The findings reveal that the gradations of wilet not only determine the duration between goongan but also shape the overall tempo and rhythmic nuances of the music. Moreover, kendangan techniques such as salancar and rangkep significantly contribute to establishing the musical character and rhythmic articulation that distinguish one wilet level from another. The study underscores that wilet in Sundanese karawitan should be understood as a dynamic and context-dependent musical structure shaped by performer interpretation, compositional form, and cultural practice rather than a mere metric system. A deeper understanding of wilet is thus essential for pedagogy, documentation, and the safeguarding of Sundanese karawitan, while also opening avenues for future inquiries into the interrelation of musical aesthetics, instrumental technique, and performance practice.

Keywords: wilet, rhythm, musical concept, time structure, Sundanese karawitan

INTRODUCTION

Music occupies a fundamental position in human life, shaping experiences and cultural identities across societies (Sabaria et al., 2025; Supriatna et al., 2025). Within diverse cultural settings, it functions not only as entertainment but also as a medium of artistic expression, interpersonal communication, and the transmission of traditional values (Budiman et al., 2025; Hidayat, 2024; Putri et al., 2023). However, in the era of globalization marked by the rapid circulation and easy accessibility of multiple musical genres, traditional forms of music, such as Sundanese *karawitan*, are often appreciated only at a surface level (Saputra & Saleh, 2024; Syukur et al., 2024). Although audiences may respond to this music intuitively, their engagement seldom develops into a deeper awareness

of its structural intricacies, aesthetic principles, or the cultural frameworks in which it is embedded (Hidayatullah, 2024; Saiful et al., 2025; Windyagiri et al., 2024). This limited appreciation contrasts with the very essence of Sundanese *karawitan*, which inherently requires refined artistic sensibility and an understanding of a complex musical heritage that has been carefully sustained through generations (Mustikawati, 2023; Soraya et al., 2023).

Within Sundanese *karawitan*, there exists a set of terms with significant functions in explaining musical structure and characteristics (Saiful et al., 2024; Saepudin & Yulaeliah, 2021). One such term is *wilet*, which etymologically derives from the Sundanese word *beulit*, meaning coil or knot (Utami et al., 2022; Saiful & Sukmayadi, 2023). In context, this term denotes certain characteristics of the rhythm, tempo,

and beat structure of *gending* (Supriatna et al., 2024). As *karawitan* developed, the term's meaning expanded to include various forms, such as *sawilet*, *dua wilet*, *opat wilet*, and *wiletan*. However, understanding of the term varies greatly among Sundanese *karawitan* artists and teachers (Krismayanty et al., 2024; Ruswandi, 2022).

The concept of *wilet* demonstrates considerable interpretative variation, as its usage is not always consistent and may differ across practitioners with distinct regional or cultural backgrounds. This variation is strongly influenced by the oral transmission of Sundanese *karawitan* knowledge, which inherently allows for multiple interpretations and localized understandings (Julia et al., 2023; Sasaki et al, 2022). Furthermore, numerous *karawitan* terminologies are derived either from colloquial expressions or adapted from external linguistic sources, leading to meanings that are highly contextual and often lack standardized definitions (Haniyya, 2023; Saiful & Saleh, 2025). Within practical applications, *wilet* may signify the organization of rhythmic units, the emergence of particular rhythmic motifs, or a reference to tempo and pacing within the execution of a *gending*. This multiplicity of meanings creates significant challenges in the areas of pedagogy, analytical discourse, and the systematic documentation of *karawitan* traditions (Kalsum et al., 2026; Anggana, 2022).

Previous scholarship has considered this matter, albeit in a limited scope. Kusumadinata (1989), in his work *Ringkesan Pangawikan Rinenggaswara*, refers to the terms *wiletan* and *perangan wiletan* (number of beats) as part of the Sundanese *karawitan* notation system, functioning similarly to the bar lines in Western music. Soepandi (1975) and Saepudin (2015) associate *wilet* with tempo and *embat*, while Martadinata (1996) and Suaman (1983) relate it to the number of beats within a single *goongan*. From another perspective, Zanten (1991) views *wilet* as a metric unit in *tembang Sunda* and *gamelan degung*, while Natapraja (2003) emphasizes its role as a quantitative structure that determines the number of beats in *sawilet* and *dua wilet*.

Research on Sundanese *karawitan* includes, for example, a study by Maulana & Romadlana (2025) entitled *Sundanese Kepesindenian Study: Analysis of Laras and Surupan in the Song "Tablo Kasmaran" by Eutik Muchtar*. This research examines the song "Tablo Kasmaran" by Eutik Muchtar as a form of Sundanese *kepesindenian* that integrates three *laras* (Salendro, Degung, Madenda) and four *surupan*. Through content analysis of audio-visual documents, the study reveals a complex musical structure, an integrated blend of vocal and instrumental elements, and profound lyrical meaning. This work demonstrates both innovative musical exploration and enrichment of Sundanese *karawitan* repertoire.

Another significant contribution comes from the work of Sasaki & Masunah (2021), *A Review of the Sundanese Scale Theory*, which revisits R. M. A. Kusumadinata's proposition that both *pelog* and *sorog*

are derived from *salendro*. Drawing upon observations of Sundanese *wayang golek purwa* performances and an analysis of vocal and *rebab* melodic lines, they contend that *pelog* had already been present since the Hindu period. In contrast, *sorog* gradually developed as a result of modulation practices within *gamelan salendro*. Their findings suggest that earlier theoretical perspectives may no longer be sufficient, since they do not fully correspond to how Sundanese musical practices are performed today.

In a more recent study, Gunawan et al. (2022) explored the issue in an article entitled *The Use of Laras in Contemporary Gamelan Music*. This research investigates how contemporary composers negotiate the unique and non-standardized system of *laras* in their creative work. This approach contrasts significantly with the compositional methods commonly applied in Western music. Through content analysis of four selected contemporary gamelan compositions, the study highlights two dominant strategies: restricting the tonal range, as demonstrated in works by Rahayu Supanggah and Dieter Mack, and broadening the tonal spectrum by combining *pelog* and *salendro*, as found in the compositions of Michael O'Neil and Iwan Gunawan. The authors conclude that even when traditional instruments are employed, innovative soundscapes can emerge through the manipulation of *laras*. Both reduction and expansion in the use of tonal resources not only enrich the timbral possibilities of gamelan but also introduce new aesthetic directions for contemporary Indonesian music.

Despite these valuable contributions, there has been no dedicated study to date that specifically addresses the concept of *wilet* within Sundanese *karawitan*. This absence is noteworthy because *wilet* serves not only as a structural device but also as a key determinant of musical character and stylistic identity. Variations in *kendangan* patterns across *sawilet*, *dua wilet*, and *opat wilet*, for example, are more than technical distinctions; they embody aesthetic preferences and interpretative choices that are deeply embedded in Sundanese musical tradition. Such subtleties call for closer scholarly attention, as a musician's comprehension of *wilet* inevitably shapes their performance, interpretative strategies, and even their compositional approach to *gending*.

Considering the diversity of interpretations, the scarcity of systematic documentation, and the significance of the *wilet* concept within the musical structure of Sundanese *karawitan*, this study focuses on two primary objectives: first, to explore how Sundanese *karawitan* artists conceptualize *wilet* based on their musical experience; and second, to examine how the term is applied in actual *karawitan* practice, particularly in relation to temporal structure, rhythm, and drumming techniques in *gending* compositions. Through this approach, the study seeks to enrich the understanding of *wilet* not merely as a term, but as a representation of the broader musical system in Sundanese *karawitan*.

METHODS

This study employs a qualitative approach with a descriptive-analytical design integrated with musicological analysis, thereby enabling an in-depth exploration of *wilet* meanings from contextual, structural, and performative perspectives (Malahati et al., 2023). This approach is considered appropriate as it facilitates an understanding of musical phenomena rooted in oral traditions and grounded in the collective aesthetic experiences of artistic practitioners (Nurrisa & Hermina, 2025). Through this approach, musical data are not treated merely as sonic structures, but as living cultural practices that acquire meaning through interaction, habitual performance, and the embodied musical experiences of practitioners within the performance context.

The data collection techniques were carried out in three stages. First, a literature review of key reference sources by Raden Machyar Angga Kusumadinata, Atiek Soepandi, Juju Sain Martadinata, Wim Van Zanten, and Iwan Natapraja was carried out to identify the concept of *wilet* and the theoretical frameworks previously established (Salley et al., 2024). Second, direct observations were made of Sundanese *karawitan* performances, particularly *kiliningan* and *sekar alit* formats, in order to record *wilet* practices within the context of actual performances. These observations were supplemented with high-resolution audio-visual recordings to enable detailed post-event analysis (Alhazmi, 2023; Raharja, 2025). Third, analyze musical documents by transcribing *gending* into symbolic and/or staff notation. Compile these using digital music software to accurately represent tempo, the number of beats (*perangan wiletan*), and *kendangan* techniques.

Data analysis techniques combine musicological structural analysis with contextual interpretation. Structural analysis identifies relationships between tempo (*embat*), the number of beats, playing techniques, and the structure of *gong* sounds at each level of *wilet* (*kering*, *sawilet*, *dua wilet*, and *opat wilet*). Numerical data related to duration and tempo were processed quantitatively and descriptively. Qualitative data in the form of musical interactions and performative nuances were analyzed hermeneutically to capture the meaning behind musical practices.

Method triangulation was used to strengthen the validity of the results by comparing data from literature, field observations, and music transcription results (Nugroho et al., 2025; Wiraguna & Widjaja, 2024). The analysis visualization is presented in the form of musical notation, schematic diagrams of *wilet* structure, and comparison tables of characteristics at each level so that music practitioners and academics can understand the findings simultaneously. This strategy ensures that *wilet* is studied not only as a theoretical construct but also as a musical phenomenon in Sundanese *karawitan* practice.

RESULTS AND DISCUSSIONS

In Sundanese culture, the term “*wilet*” has a deep and broad meaning. In the fishing world, it is a knot or tie in a net that is formed in a spiral from the center to the edge. This process is called *ngawilet*. The greater the number of knots, the wider and more open the net becomes when cast. In Sundanese *karawitan* (traditional gamelan music), *wilet* denotes a temporal unit within a *gending* (musical composition). Expressions such as *sawilet*, *dua wilet*, and *opat wilet* indicate different lengths of musical cycles; the greater the number of *wilet*, the longer the rotation or musical duration. Interestingly, this concept exhibits a similar underlying principle in both contexts: the more *wilet* there are, whether in nets or in music, the greater the expansion that occurs. In nets, this expansion is physical; in music, it manifests in time and rhythm. In the fishing context, the net is formed through interlinked knots arranged in circles, beginning with a single knot and gradually expanding in number. The gradations of *wilet*, such as *sawilet*, *dua wilet*, and *opat wilet*, determine the relative length of the temporal space between *goongan* (gong cycles), which is influenced by tempo (*embat*), rhythm (*irama*), and the number of beats.

This explanation narrates that the term *wilet* in Sundanese *karawitan* most likely constitutes an adoption of an older local term rooted in the livelihood of fishing communities, particularly in the practice of *ngawilet*, or net weaving. In this practice, *ngawilet* refers to the regulation of the net's circular dimensions, which functions to control the fishing area in a measured and deliberate manner. When this term is applied within the domain of *karawitan*, its original spatial meaning is not merely retained. However, it expands conceptually into the regulation of duration or temporal units in music, thereby positioning *wilet* as a principle of temporal control within musical practice.

The use of *wilet* gradations in *gending* is closely related to aspects of beat (*perangan wiletan*), tempo (*embat*), rhythm, and *irama*. Such gradations are generally employed in *karawitan* that feature a clearly defined beat structure, such as in *tandak* forms. As explained by Atik Soepandi (1975) in *Teori Karawitan Sunda*, the term *tandak* generally refers to a regular, steady rhythmic pattern and is not applied to free-rhythm genres such as *Tembang Sunda Cianjuran*, which is characterized by flexible tempo and the absence of a strict metronomic beat. Likewise, *wilet* gradations are not applied to specialized works such as *Sekar Ageung* compositions. In practice, *wilet* gradations can be implemented either singularly (one gradation throughout a composition) or in combination (multiple gradations within a composition) through the processes of *naekeun* (raising the *wilet*) and *nurunkeun* (lowering the *wilet*), both of which are controlled by the *kendang* player. This process involves tempo changes that create variations in the duration between *goongan*, resulting in expansions or contractions within the musical structure.

However, in specific Sundanese *karawitan* repertoires, such as *Sekar Ageung* compositions, for example, *Kawitan* tempo changes serve as a structural hallmark rather than as indicators of *wilet* gradations. In *Kawitan*, the contrast between *Gancang* (fast) and *Kendor* (slow) sections signifies tempo as a formal marker, not as a change in *wilet*. This chapter emphasizes that understanding and applying *wilet* in Sundanese *karawitan* depends on the type of work and the traditions practiced by artists.

In Sundanese *karawitan*, variations in the *wilet* level have a direct influence on the expansion and contraction of the *goongan*, namely the interval between successive gong strokes that articulate the musical cycle. A decrease in the *wilet* level (a process referred to as *nurunkeun*), for instance from *sawilet* to *dua wilet* or *opat wilet*, results in an expanded *goongan*. This is manifested through a slower *embat* (tempo) and longer durations between the *gong* articulations. In contrast, an increase in the *wilet* level (*naekeun*) produces a contraction of the *goongan*, characterized by a faster tempo and shorter intervals between successive *gong* strokes.

The arrangement of *wilet* changes within Sundanese *karawitan* compositions is not always linear; it can fluctuate, for example, in a sequence such as *sawilet* – *dua wilet* – *sawilet* – *kering*, producing variations in *goongan* expansion and contraction within a single work. Such transformations are typically applied to *Sekar Alit gending*, such as *Gendu*, *Kulu-Kulu*, *Panglima*, and *Banjaran*, which allow for flexibility in *wilet* changes. In contrast, compositions categorized as *Sekar Ageung*, such as *Kawitan*, *Renggong Gedé*, *Kastawa*, and *Sungsang*, possess a more rigid structure that does not permit changes in *wilet* gradation.

Although *Sekar Ageung* pieces may have extremely slow tempos resembling *opat wilet* compositions, they differ significantly in terms of beat count, *goongan* placement, and the uniformity of cycle durations. In *opat wilet*, tempo and beat structure are relatively constant, whereas in *Sekar Ageung* works, tempo and beat counts vary and are not bound to a single *patet* system. As a result, although both types are sometimes collectively referred to as *Lalamba*, they are musically distinct.

In the tradition of Sundanese *karawitan*, especially within the repertoire of *Sekar Alit gending*, one can observe the presence of a relatively consistent skeletal framework underlying most compositions. This structural foundation, commonly referred to as *balungan gending* or *kerangka gending*, serves as the core upon which the music is built. The *balungan* is generally organized into eight functional tonal components that complete a single *goongan* cycle: *pangaget* – *pancer* – *pangaget* – *kenong* – *pangaget* – *pancer* – *pangaget* – *gong*. For practical purposes, this sequence is frequently simplified into the formula: *get* – *cer* – *get* – *nong* – *get* – *cer* – *get* – *gong*.

In performance practice, this framework is most often articulated by the *selentem*, an instrument

specifically tasked with outlining these tonal pillars within the span of one *gending* cycle, stretching from one gong stroke to the next. Surrounding instruments, meanwhile, occupy the interstitial space by weaving characteristic ornamental or elaborative patterns according to their musical roles and timbral qualities. When transcribed into rhythmic notation, the underlying structure can be represented as follows:

| . get . cer | . get . nong | . get . cer | . get . gong |

When this structural framework is articulated through the specific pitches executed by the *selentem*, the abstract schematic evolves into a concrete musical realization. In this process, the *selentem* functions as the primary instrument that delineates the core melodic contour of the *gending*, translating the underlying skeletal pattern into an audible and measurable musical structure. The transformation from conceptual framework to realized notation not only clarifies the internal organization of the *gending* but also reveals how each tonal component operates within the temporal span of a single *goongan*. This relationship between structural design and musical execution is demonstrated in the following notation.

| . 3 . 5 | . 3 . 1 | . 3 . 5 | . 3 . 4 |

The pitches within this framework are inherently flexible and may vary depending on the *gending* being performed as well as the *patet* employed as the tonal reference system. In other words, the structural framework remains consistent, while the melodic substance adapts to the specific musical context. Furthermore, to concretely illustrate the application of this *balungan* framework in practice, the complete notation of *Gending Macan Ucul* in the *sawilet* level can be presented in visual form (notation), demonstrating how all *waditra* interact to construct a single *goongan* cycle based on this fundamental structure. Please take a look at Figure 1.

The notation above serves as an initial representation of how the structure of a *gending* at the *sawilet* level is visualized in the form of musical notation. In the illustration, it is evident that one *goongan* cycle consists of four measures, repeated continuously as the fundamental compositional pattern. Each *waditra* (instrument) performs relatively simple melodic and rhythmic patterns, aligned with the characteristics of *sawilet*, which features a moderate tempo and a relatively sparse number of beats. The presence of consistent and repetitive patterns in this notation reflects the basic framework commonly employed in *Sekar Alit* compositions, particularly within the *sawilet* form. However, this pattern undergoes significant transformations when the same *gending* is performed at other *wilet* levels, such as *kering*, *dua wilet*, or *opat wilet*. These changes encompass variations in tempo, the number of beats per measure, as well as the density and diversity of rhythmic patterns performed by each instrument in

the ensemble. The following illustration presents the rhythmic differences when the same *gending* is performed in *kering* and *dua wilet* tempos. Please take a look at Figure 2 and Figure 3.

The marked differences among *sawilet*, *kering*, and *dua wilet* in Sundanese *karawitan* can be clearly observed through the structural patterns of drumming (*tabuhan*) and melodic lines performed by each *waditra* (instrument). The most salient factor distinguishing these three wilet levels lies in the rhythmic and melodic patterns that constitute the overall structure of a *gending*. These patterns are directly influenced by the variation in tempo (*embat*) at each *wilet* level, which plays a crucial role in determining the density of sound, the musical space, and the degree of complexity in the performance of each instrument.

The notational analysis demonstrates that the rhythmic structures employed in a *gending* at the *kering* level differ substantially from those at the *sawilet* level. At the *kering* level, the rhythmic organization is generally more straightforward, concise, and functionally oriented. Such straightforwardness should not be interpreted as a lack of musical

variation; rather, it reflects an intentional adjustment to accommodate the rapid tempo. In performance practice, the accelerated pace requires musicians to streamline their playing patterns in order to sustain rhythmic precision, ensemble synchronization, and clarity of musical expression. Accordingly, the *kendangan* figures in *kering* are typically shorter in duration and less ornamented.

By contrast, the *dua wilet* level exhibits rhythmic patterns of greater density and complexity. This results from its significantly slower tempo compared to both *sawilet* and *kering*, which opens wider temporal intervals between beats and within the *goongan* cycles. These broader temporal spans provide performers with the opportunity to elaborate and diversify their rhythmic expressions. For example, *rincik* or *peking* players may introduce syncopated accents or ornamental figures that would not be feasible at a faster tempo. Consequently, at the *dua wilet* level, the rhythmic texture becomes not only more sonically layered but also structurally sophisticated, as it emerges through interactive and responsive collaboration among the ensemble's *waditra*.

		POLA 1 I - (IV) GENDING SAWILET															
Pangkat: 3 1 2 4 5 3 (4)		POLA GENDING				GET CER				GET NONG				GET CER			
POLA LAGU		. III . V				. III . I				. III . V				. III . IV			
GONG	G	0	P	0	0	0	P	0	0	0	P	0	P	0	P	0	G
KENONG	4	0	0	0	5	0	0	0	1	0	0	0	5	0	0	0	4
SELENTEM	4	0	3	-	5	-	3	-	1	-	3	-	5	-	3	-	4
SARON 1		5	5	2	5	1	1	3	1	5	5	2	5	4	4	2	4
SARON 2	4	0	1	0	3	0	1	5	0	2	0	4	0	2	1	5	0
PEKING	4	5	1	5	3	2	1	5	1	2	1	4	3	2	1	5	4
DEMUNG	0 4	3	2	0	2	3	4	0	1	2	3	0	3	2	1	0	1
RINCIK	0 4/4	0	4/4	0	4/4	0	4/4	0	1/1	0	1/1	0	1/1	0	1/1	0	4/4
BONANG	0	4/4	0	4/4	5/5	1/1	0	1/1	0	1/1	0	1/1	5/5	4/4	0	4/4	0

Figure 1 Notation of the gending “Macan Ucul” *Sawilet Patet Nem* (Source: Toni Setiawan Sutanto)

PEKING	4	4	2	3	4	1	3	2	1	1	3	2	1	4	2	3	4
DEMUNG	0	4	3	4	0	1	3	1	0	1	3	1	0	4	3	4	0
RINCIK	0	0	4	0	4	0	1	0	1	0	1	0	1	0	4	0	4
BONANG	0	4/4	0	4/4	0	1/1	0	1/1	0	1/1	0	1/1	0	4/4	0	4/4	0

Figure 2 Notation for the gending “Macan Ucul” Tempo *Kering Waditra Peking, Demung, Rincik, Bonang* (Source: Toni Setiawan Sutanto)

PEKING	4 5 3 5	3 5 3 5	3 5 3 5	3 5 3 5	4 5 5 5	5 5 5 5	5 5 5 5	5 5 5 5	5 5 5 5	1 5 5 5
DEMUNG	4 5	3 5	3 5	3 5	4 5	5 5	5 5	5 5	5 5	1 5
RINCIK	04020402	04020402	04020402	04020402	04040404	04040404	04040404	04040404	04040401	04040404
BONANG	0 4 .2	0 4 .2	0 4 .2	0 4 .4	0 5 .5	0 5 .5	0 5 .5	0 5 .1	0 5 .1	0 5 .5

PEKING	5 5 5 5	5 5 5 5	5 5 5 5	1 5 3 5	3 5 3 5	3 5 3 5	3 5 3 5	3 5 3 5	4 5 5 5
DEMUNG	5 5	5 5	5 5	1 5	3 5	3 5	3 5	3 5	4 5
RINCIK	04040404	04040404	04040401	04020402	04020402	04020402	04020402	04020404	04040404
BONANG	0 5 .5	0 5 .5	0 5 .1	0 4 .2	0 4 .2	0 4 .2	0 4 .2	0 4 .4	0 5 .5

Figure 3 Notation for the *gending* “Macan Ucul” Tempo *Dua Wilet Waditra Peking, Demung, Rincik, Bonang*
(Source: Toni Setiawan Sutanto)

The rhythmic character of *sawilet* occupies an intermediary position between the two extremes. It is neither as simplified as in *kering* nor as intricate as in *dua wilet*. The moderate tempo of *sawilet* allows musicians to incorporate a degree of variation while maintaining efficiency and structural balance. Another equally significant distinction lies in the melodic patterns among the instruments. In *sawilet*, interlocking melodic exchanges predominantly occur between *saron I* and *saron II*, where the two alternate or intersect their melodic phrases. In this context, the *peking* often integrates the melodies of *saron I* and *saron II*, thereby functioning as a filler or connector.

In *kering*, the function of the *peking* undergoes a substantial transformation. At a high tempo, the instrument no longer adheres to the composite melodic contour derived from *saron I* and *saron II*. Rather, it generates its own melodic trajectory, prioritizing rhythmic precision and sonic clarity. In this way, the *peking* assumes a more autonomous role: it is not fully dependent on the melodic framework of the *saron*, yet it continues to operate within the structural boundaries of the *gending*. Along similar lines, both *bonang* and *demung* employ straightforward but emphatic patterns designed to preserve rhythmic stability under rapid tempo conditions.

By contrast, in *dua wilet*, melodic intricacy becomes far more pronounced. Interlocking processes extend beyond the interaction of *saron I* and *saron II*, encompassing the *bonang*, *demung*, *peking*, and *rincik*. The interaction among these instruments produces a richer and more multilayered musical texture. Each instrument contributes its own creative gesture to the temporal field, while remaining anchored within the established *balungan* framework. This interplay highlights the broader scope of collective development

and offers greater room for improvisation, an essential characteristic of *dua wilet* performances, particularly those of an expressive nature.

Accordingly, the differences among the *wilet* levels in Sundanese *karawitan* are not limited to tempo or the number of beats; they extend to an entire musical conception that integrates rhythmic design, inter-instrumental dialogue, and the degree of freedom in exploring sonic possibilities. Recognizing these aspects is vital for a deeper analysis and appreciation of the richness inherent in *gending* compositions. A comparison of rhythmic and melodic configurations across *kering*, *sawilet*, and *dua wilet* reveals that temporal and spatial dimensions in Sundanese *karawitan* are governed not merely by tempo or beat count but also by collective interpretation, structural organization, and the expressive function of each *waditra*. This complexity becomes particularly evident when one examines the duration of the *goongan* across different *wilet* levels. To analyze temporal dynamics more precisely, the following discussion will focus on the classification of *goongan* durations in relation to *wilet* structure, as well as the principal factors influencing them, including tempo and the number of beats within a single musical cycle.

Finally, the investigation of rhythmic and textural distinctions among the *wilet* levels must be complemented by an inquiry into *goongan* duration, which serves as the most immediate and observable marker of temporal change in Sundanese *karawitan*. In this regard, the differentiation of *wilet* levels can be recognized through the relative length of the intervals between *goongan*. These intervals may be classified into five main categories: very short, short, moderately long, long, and very long. A detailed presentation of this classification is provided in the following Table 1.

Table 1 Classification of Wilet Levels in Sundanese Karawitan

No	Wilet Levels	Duration Category Between Goongan	Time (± second)
1	<i>Kering</i>	Very Short	5 – 7 seconds
2	<i>Sawilet</i>	Short	8 – 12 seconds
3	<i>Sawilet</i> <i>Satengah/</i> <i>Dua Wilet</i> <i>Gancang</i>	Rather Long	18 – 20 seconds
4	<i>Dua Wilet</i>	Length	23 – 48 seconds
5	<i>Opat Wilet</i>	Very long	90 – 100 seconds

(Source: Toni Setiawan Sutanto)

Nevertheless, this duration is relative, as it depends on the drumming techniques of the *kendang* player, the musical sensitivity of the *karawitan* practitioners, and the characteristics of the *gending* being performed. In other words, duration should not be regarded as a fixed measure, but rather as the outcome of a dynamic interaction between individual competence and the musical context of the performance. In principle, variations in duration among *goongan* within the same level of *wilet* are determined by several key factors, namely tempo, the number of beats, and the rhythmic patterns employed in the presentation of the *gending*.

The faster the tempo, the shorter the duration between *goongan*; conversely, a slower tempo results in a longer duration. Tempo refers to the fundamental speed of musical motion, measured by the number of beats per unit of time. In the context of Sundanese *karawitan*, tempo (*embat*) plays a crucial role in determining the length of time between *goongan*, i.e., the temporal span between two strokes of the large gong that mark one musical cycle. When the tempo is increased, the same number of beats is executed in a shorter time span, thereby automatically shortening the duration between *goongan* as the entire *gending* structure moves more rapidly. Conversely, when the tempo is slowed, executing the same number of beats requires more time, lengthening the interval between *goongan*.

Logically, tempo functions as the regulator of the execution rate of a fixed musical structure. In other words, although the number of beats within one *goongan* remains unchanged, the speed of executing those beats directly determines how long a *goongan* lasts in real time. Thus, the higher the tempo, the shorter the time required to complete a *goongan*, and vice versa. This explains why tempo changes in Sundanese *karawitan* practice directly affect the musical sensibility and temporal structure of a *gending*. Changes may occur in the number of beats within a single *goongan*, often

in multiples. For instance, *sawilet* comprises 16 beats per *goongan*, whereas *dua wilet* consists of 32 beats. At the extremes, *kering* contains 8 beats, while *opat wilet* reaches 64 beats in a single *goongan*.

It is important to note, however, that the grouping of beats within each *wilet* level is relative and not always based on fixed numerical values. In practice, two *gending* with different *wilet* levels can have the same number of beats, differing only in tempo. Conversely, the number of beats may be altered as a form of expressing a performer's musical sensibility, or even a listener's perception. This occurs because, in Sundanese *karawitan*, the concept of a "beat" (*ketukan*) is not an absolute unit of time, but rather a product of shared musical feeling (*rasa*) among ensemble members. For example, a saron player may perceive the beat as moving twice as fast as that perceived by a *gong* or *bonang* player, resulting in the same *goongan* structure being experienced or articulated with different rhythmic sensations by different instruments (*waditra*).

In academic writing and musical analysis, the number of beats is often adjusted, either expanded or compressed, to more clearly illustrate rhythmic structures in notational or diagrammatic form. Consequently, the beat count used in this study should be understood as a conceptual framework rather than an absolute measurement. It functions as an analytical tool to explore how temporal structures operate across different layers of musical organization. This perspective suggests that musical time need not be interpreted in a strictly linear or quantitative sense, as in chronometric measurement. Instead, musical temporality is contextual and interpretive, shaped by the embodied experience of both performers and listeners, rather than by fixed durations or predetermined numerical values (Hidayatullah, 2022; Vlahopol, 2019).

Within the practice of Sundanese *karawitan*, for instance, the variability in the number of beats within a single cycle, or *goongan*, may be understood not as a rigid mathematical scheme but as the product of collective perception, aesthetic sensibility, and interpretive choices that emerge organically during performance. Such variability reveals the inherent elasticity and dynamism of Sundanese musical structures. Shifts in *wilet* function not only as a means of regulating rhythmic flow but also as an expressive strategy that shapes the atmosphere and dramatic contour of a performance. The diagram below illustrates how temporal organization transforms when the *wilet* changes progressively from a faster to a slower pace.

Figure 4 illustrates that each change in the level of *wilet* generally implies an extension or contraction of the time cycle between *gong* strokes. However, these duration figures are estimative and flexible, as in practice they are influenced by musical sensibility (*rasa musikal*) and the mutual agreement among *karawitan* practitioners. In other words, this dynamic not only shapes the rhythmic framework but also serves as the

foundation for the formation of a collective musical sensibility that is adaptive and context-dependent within the Sundanese *karawitan* tradition.

Kering: |---|---|
 Sawilet: |---|---|
 Dua wilet: |-----|-----|
 Opat wilet: |-----|-----|-----|

Figure 4 Changes in *Wilet* Levels in Sundanese *karawitan*
 (Source: Toni Setiawan Sutanto)

This section emphasizes that tempo is a crucial element distinguishing the various *wilet* levels in Sundanese *karawitan*. Tempo changes, whether acceleration or deceleration, directly affect the temporal space between beats and structure the hierarchy of *wilet* levels within a composition. In practice, Sundanese *karawitan* recognizes a range of tempo variations, including fast, moderately fast, moderately slow, slow, and very slow, each corresponding to a particular *wilet* level: **Kering** (*fast tempo*), **Sawilet** (*moderately fast*), **Sawilet satengah / Dua wilet gancang** (*moderate*), **Dua wilet** (*slow*), **Opat wilet** (*very slow*).

The average tempo associated with each *wilet* level is systematically outlined in the following table, providing a clearer understanding of the temporal hierarchy that characterizes Sundanese *karawitan*. This classification not only illustrates the relative speed of each *wilet* category but also highlights how tempo shapes rhythmic density, structural spacing, and the overall expressive contour of a *gending*. To observe these distinctions more concretely, please refer to Table 2.

Table 2 *Wilet* Levels in Sundanese *Karawitan*

No	<i>Wilet</i> Levels	Tempo ($\pm$ beat/minute)
1	<i>Kering</i>	200
2	<i>Sawilet</i>	130
3	<i>Dua wilet gancang</i>	95
4	<i>Dua wilet</i>	45
5	<i>Opat wilet</i>	20

(Source: Toni Setiawan Sutanto)

However, these figures are relative, as there is no standardized tempo in Sundanese *karawitan*. Tempo is largely determined by the individual musician's musical sensibility, particularly within the context of ensemble performance. In ensembles such as *kiliningan*, tempo regulation is entirely entrusted to the *kendang* player, who serves as the *pamurba irama* or the primary timekeeper. Different *kendang* playing techniques can generate rhythmic variations even within the same piece, depending on the skill, experience, and interpretive sensibility of each performer.

In Sundanese *karawitan* performance practice, agreements regarding tempo are not established verbally or in writing, but rather emerge through the ensemble's shared musical intuition, cultivated through interactive processes among players. While the *kendang* player plays a dominant role as tempo setter and *pamurba irama*, adjustments occur organically through the collective observation and musical sensitivity of the entire ensemble. This understanding aligns with Benamou's (2010) assertion that *gamelan* musicians develop a shared mental framework (*shared simulator*) of repertoire and performance style. This

SARON 1 4 5 || 5 5 5 2 5 2 5 1 | 1 1 1 3 1 3 1 5 || 5 5 5 2 5 2 5 4 | 4 4 4 2 4 2 4 5 ||

SARON 2 4.05 || 0101 0301 0301 5.02 | 0202 0402 0402 1.05 || 0101 0301 0301 5.03 | 0303 0103 0103 4.05 ||

Figure 5 Notation for *Saron 1* and *Saron 2* *Gending* with *Salancar* Rhythm Pattern (Source: Toni Setiawan Sutanto)

SARON 1 4 5 5 5 || 5 5 5 5 5 2 5 2 5 2 5 2 5 1 1 1 | 1 1 1 1 1 3 1 3 1 3 1 3 1 5 5 5 |

SARON 2 00010101 || 01010101 03010301 03010301 50020202 || 02020402 04020402 04020402 10010101 |

5 5 5 5 5 2 5 2 5 2 5 2 5 4 4 4 || 4 4 4 4 4 2 4 2 4 2 4 2 4 2 4 2 ||

01010101 03010301 03010301 50030303 || 03030303 01030103 01030103 40010101 ||

Figure 6 Notation for *Saron 1* and *Saron 2* *Gending* with *Dirangkep* Rhythm Pattern (Source: Toni Setiawan Sutanto)

enables each musician to intuitively respond to their fellow performers, even in the absence of prior formal musical discussion. They retain a collective memory of rhythmic patterns, melodic structures, and expressive moments refined through repeated performance experiences. In playing together, they instinctively sense “as-if” what mode or variation their colleagues will employ, thereby achieving synchronization.

This represents the tangible form of the gamelan’s implicit rules not codified in writing, but constructed collectively through sound and shared experience. In other words, this collective sensibility arises from shared aesthetic and musical experiences, expressed in sound rather than verbal instruction. It is this mechanism that allows gamelan performance to sound cohesive, harmonious, and deeply meaningful, even without prior discussion among players.

During Sundanese *karawitan* rehearsals and performances, tempo adjustments often occur spontaneously, without the need for explicit cues from a leader. For example, a *saron* player responds almost instantly to changes in the intensity of the *kendang*’s rhythmic strokes. When the *kendang* accelerates the pattern, the *saron* player adapts by adjusting tempo, rhythmic articulation, and dynamic strength. Such coordination does not rely on verbal instruction but rather on musical sensitivity that has been cultivated through repeated interaction in performance. In this sense, the musicians are not merely playing their individual instruments; they are also interpreting and negotiating the evolving musical context shaped by the character of the *gending*.

Musicians in a gamelan ensemble demonstrate an intuitive mode of musical communication. Collectively, they can sense the appropriate moments to accelerate, decelerate, or maintain a given tempo, guided by subtle cues such as dynamic pressure, variations in drum patterns, or even the breathing and bodily gestures of fellow performers. This phenomenon reflects a refined level of ensemble cohesion and sensitivity, developed through sustained practice, accumulated performance experience, adherence to local stylistic conventions, and the gradual maturation of musical sensibility.

Tempo adjustments are also contingent upon the type of composition. In *kiliningan* or *lagu sekar alit*, for instance, tempo tends to be more flexible, allowing shifts in *wilet* levels within a single *gending*. By contrast, in *lagu sekar ageung* such as *Kawitan*, *Renggong Bandung*, *Kastawa*, *Sungsang*, and others, tempo is generally more stable, owing to the more rigid structural framework of the compositions. Within the *kiliningan* tradition, specific rhythmic modes such as *irama salancar* and *irama rangkep* contribute distinctive rhythmic textures that enhance the expressive range of Sundanese *karawitan*. These modes are closely linked to the role of the *kendang*, which generates particular rhythmic impulses that, in turn, elicit corresponding responses from the playing techniques of other *waditra* (gamelan instruments).

The findings reveal that *kendangan* plays a

decisive role in shaping both the rhythmic structure and the overall density of *karawitan*. When performed in *irama salancar*, the *kendangan* emphasizes a more accentuated pulse, a clearly delineated metric framework, and relatively straightforward rhythmic patterns. By contrast, the *irama rangkep* style produces an accelerated tempo with denser textures, featuring intricate rhythms that often involve improvisational elements. To illustrate this distinction, the following example highlights the rhythmic characteristics of a *gending* presented in both *salancar* and *rangkep* modes. See Figure 5 and Figure 6.

In the notation above, it can be observed that the total number of beats remains essentially constant, and the underlying tempo also shows little variation. Although the beat or tempo is maintained, different subdivisions of note values within each beat give rise to distinct rhythmic patterns. These variations in note-value subdivision directly shape the perceived musical character, such that even at an identical tempo, the rhythmic nuance and expressive feel may change significantly.

In Sundanese *karawitan* practice, rhythm plays a central role in shaping the musical character of a *gending*. While the metric structure and tempo of Sundanese *gending* are generally stable, the musical expression that emerges is profoundly influenced by how rhythm is constructed through the subdivision of note values within the beat. Changes in rhythmic density, such as shifting from a simple pattern to a denser one, or vice versa, create varied expressive nuances. This demonstrates that rhythm is not merely a filler within the metric space, but also a primary determinant in building musical feeling, temporal emphasis, and dynamic expression in a *karawitan* performance. Such characteristics reflect that in Sundanese *karawitan*, rhythm is dialogical in nature; it not only conveys rhythmic structure but also facilitates a more complex form of musical communication.

Toussaint (2016) asserts that aesthetically pleasing rhythm is characterized by a time distribution that is not entirely even, yet still perceived as balanced. This controlled asymmetry is what generates rhythmic tension and dynamism. In the context of Sundanese *karawitan*, this concept is reflected in rhythmic patterns that are not entirely isochronic. For example, in *kendang* playing or in interlocking (*carukan*) between *saron I* and *saron II*, *bonang* and *demung*, or *peking* and *rincik*, rhythmic accents are sometimes deliberately shifted away from the main beat to create a sense of swing, emphasis, or specific rhythmic tension (Banoe, 2003). This strategy provides an expressive value that enriches the listener’s musical experience, aligning with Toussaint’s (2016) principle of “good” beat distribution.

Empirically, Sundanese *karawitan* has long applied rhythmic principles that align with Toussaint’s (2016) theory, albeit through intuitive and traditional approaches. The concepts of interlocking/*carukan*, *wilet*, and *tepak kendang* are concrete manifestations of the effort to create a rhythm that is “good” in both

musical and aesthetic terms, neither monotonous nor chaotic. Therefore, the understanding of rhythmic quality in Sundanese *karawitan* should not be seen merely as a matter of technical execution, but also as a musical practice rooted in universal principles of rhythmic beauty.

The application of *kendang* techniques exerts an influence that extends well beyond the mere regulation of rhythm; it also determines the interplay and articulation of other *waditra* such as the *saron*, *bonang*, and *kenong*. For example, when the *saron* employs the *rangkep* technique, its melodic articulation tends to adjust and align with the denser rhythmic flow set by the *kendang*. In contrast, instruments such as the *goong* and *kenong* generally sustain a more stable rhythmic framework, relatively unaffected by the specific variations of *kendang* techniques applied. In this regard, the role of *kendang* becomes pivotal in shaping not only the rhythmic structure but also the overall musical texture, dynamic flow, and aesthetic character of Sundanese *karawitan*. These findings contribute to a more nuanced understanding of the aesthetic dimensions and structural organization of Sundanese musical tradition, while also offering valuable insights for pedagogical approaches as well as practical performance.

CONCLUSIONS

This study affirms that *wilet* in Sundanese *karawitan* is not merely a metric system, but rather a complex and multilayered musical structure that integrates tempo (*embat*), beat cycles (*perangan wiletan*), rhythmic organization, and temporal regulation across *goongan* cycles. Although rooted in the everyday practices of Sundanese society, *wilet* has undergone a semantic expansion into a flexible, adaptive, and highly contextual framework of musical time in the presentation of *gending*. Variations of *wilet* ranging from *kering*, *sawilet*, and *dua wilet* to *opat wilet* generate differences in tempo, number of beats, and rhythmic density, thereby shaping diverse modes of musical expression in accordance with performance contexts and the collective experience of practitioners.

The findings also demonstrate the central role of the *kendang* player as *pamurba irama* in intuitively negotiating tempo within an oral tradition, such that tempo is understood not as an absolute parameter, but as the outcome of musical interaction. Techniques such as *salancar* and *rangkep* are shown to be decisive in shaping rhythmic dynamics, aligning with the aesthetic frameworks of rhythm discussed by Toussaint and Kramer. Theoretically, this study extends the conceptualization of *wilet* as a cultural construct that reflects Sundanese conceptions of musical time. At the same time, practically, it offers significant contributions to the development of pedagogy, documentation, and the preservation of Sundanese *karawitan*.

Nevertheless, this study is subject to several limitations, particularly the restricted scope of

objects confined to specific performance contexts and examples, as well as the predominance of a qualitative approach that is not yet supported by detailed quantitative analyses of tempo and duration. Future research is therefore encouraged to broaden the range of repertoires and styles examined, to integrate audio-technology-based analytical methods, and to explore the relationship between *wilet* and musical *rasa*, aesthetic preferences, and pedagogical strategies in educational settings. Comparative studies with other *karawitan* traditions across the Indonesian archipelago also hold strong potential to enrich understandings of musical time construction within Indonesian musical cultures.

Author Contributions: Conceived and designed the analysis, T. S. S.; Collected the data, T. S. S.; Contributed data or analysis tools, T. S. S., and M. R. M.; Performed the analysis, M. R. M.; Wrote the paper, T. S. S., and M. R. M..

Data Availability Statement: Data available on request from the authors. The data that support the findings of this study are available from the corresponding author, [TSS, MRM], upon reasonable request. The data include audio and video recordings, field notes, and interview transcripts that contain culturally sensitive materials and personal information of the participants; therefore, they are not publicly accessible to protect ethical considerations and respect cultural contexts.

REFERENCES

- Alhazmi, A. H. (2023). Analisis Tata Kelola Seni Pertunjukan di Taman Budaya Yogyakarta. *Jurnal Tata Kelola Seni*, 9(1), 26–46. <https://doi.org/10.24821/jtks.v9i1.8380>
- Anggana, R. D., & Zaenab, A. S. (2022). Komparasi Senggol Sekar Kepesindenanan Cucu S. Setiawati, Yoyoh Setia Asih, dan Neni hayati. *PARAGUNA: Jurnal Ilmu Pengetahuan, Pemikiran, Dan Kajian Tentang Seni Karawitan*, 9(1), 9–28. <https://doi.org/10.26742/paraguna.v9i1.2295>
- Banoe, P. (2003). *Kamus Istilah Musik*. Penerbit Kanisius, 2003.
- Benamou, M. (2010). *RASA: Affect and Intuition in Javanese Musical Aesthetics*. Oxford University Press, 2010.
- Budiman, A., Yanuar, D., & López-Lara, Á. (2025). Traditional Sundanese Music as a Medium for Environmental Advocacy: A Case Study of the Song Kuring Leungiteun in the Context of the Global Ecological Crisis. *Resital Jurnal Seni Pertunjukan*, 26(1), 96–121. <https://doi.org/10.24821/resital.v26i1.15316>
- Gunawan, I., Milyartini, R., & Masunah, J. (2022). The Use of Laras in Contemporary Gamelan Music. *Harmonia: Journal of Arts Research and Education*, 22(1), 161–173. <https://doi.org/10.15294/harmonia.v22i1.35483>

- Haniyya, S. R. (2023). Eksistensi Karya Kacapi Tunggal Yoyoh Supriatin. *Paraguna*, 9(2), 29. <https://doi.org/10.26742/paraguna.v9i2.2243>
- Hidayat, T. (2024). Existence of the Teras Sunda Cibiru as a preserving Sundanese traditional arts. *IOP Conference Series: Earth and Environmental Science*, 1366(1), 20–50. <https://doi.org/10.1088/1755-1315/1366/1/012050>
- Hidayatullah, R. (2022). *Analisis Musik*. Arttex, Yogyakarta., 2022.
- Hidayatullah, R. (2024). Seni Tradisi Indonesia dan Tantangan Masyarakat Global. *Grenek Music Journal*, 13(1), 107–113. <https://doi.org/10.24114/grenek.v13i1.57012>
- Julia, J., Supriyadi, T., Ali, E. Y., Agustian, E., & Fadlilah, A. (2023). Developing Elementary School Teacher's Professional Competence in Composing Traditional Songs: An Action Research in Indonesia. *International Journal of Learning, Teaching and Educational Research*, 22(6), 435–458. <https://doi.org/10.26803/ijlter.22.6.23>
- Kalsum, N. U., Abdullah, I., Suprianto, B., & Rachmadini, N. (2026). Digital transformation and co-existence of Malay culture in the new media era. *Cogent Arts and Humanities*, 13(1), 1–16. <https://doi.org/10.1080/23311983.2025.2606864>
- Krismayanty, M., Wastap, J. B., & Saleh, S. (2024). The Role of Sinden in Wayang Golek: Functions And Challenges. *PANTUN: Jurnal Ilmiah Seni Budaya*, 9(1), 74–85. <https://doi.org/10.26742/pantun.v9i1.3262>
- Kusumadinata, M. A. (1989). *Ringkesan Pangawikan Rinenggaswara: Ringkesan Elmuning Kanayagan*. Noord-hoff-Kolff, 1989.
- Malahati, F., Ultavia, A., Jannati, P., Qathrunnada, Q., & Shaleh, S. (2023). Kualitatif: Memahami Karakteristik Penelitian Sebagai Metodologi. *Jurnal Pendidikan Dasar*, 11(2), 341–348. <https://doi.org/10.46368/jpd.v11i2.902>
- Martadinata, J. S. (1996). *Sekar Gending Degung*. Bandung Mitra Buana, 1996. <https://onsearch.id/Record/IOS4151.JABAR-01090000008616>
- Maulana, M. R., & Romadlana, R. S. (2025). Kajian Kepesinden Sunda: Analisis Laras Dan Surupan Dalam Lagu “Tablo Kasmaran” Karya Eutik Muchtar. *Musikolastika: Jurnal Pertunjukan Dan Pendidikan Musik*, 7(1), 41–54. <https://doi.org/10.24036/musikolastika.v7i1.198>
- Mustikawati, I. (2023). Penelusuran Teknik Penciptaan Lagu Anak Menggunakan Estetika Karawitan Sunda. *Paraguna*, 10(2), 106. <https://doi.org/10.26742/paraguna.v10i2.2949>
- Natapraja, I. (2003). *Sekar Gending: Catatan Pribadi Tentang Karawitan Sunda*. Karya Cipta Lestari, 2003.
- Nugroho, A. S., Satoto, A. B., & Saepudin, A. (2025). Rekonseptualisasi Metode Pembelajaran Ricikan Gender Berbasis Model Aural: Pendekatan Interpretasi Rasa dalam Pendidikan Formal. *Promusika: Jurnal Pengkajian, Penyajian Dan Penciptaan Musik*, 13(April), 27–40. <https://doi.org/10.24821/promusika.v13i1.14962>
- Nurrisa, F., & Hermina, D. (2025). Pendekatan Kualitatif dalam Penelitian: Strategi, Tahapan, dan Analisis Data. *Jurnal Teknologi Pendidikan Dan Pembelajaran*, 2(3), 793–800. <https://jurnal.kopusindo.com/index.php/jtpp/article/view/581>
- Putri, R. M., Angelica, I. U., Wahyuningtyas, F., Cahyadi, H., Sunde, Y. O., Amanullah, N. A., Ramadhava, N., & Cahya, A. (2023). Analisis Musik Karawitan Jawa dan Lirik Tembang Jawa Macapat. *Jurnal Kultur*, 2(1), 54–62. <http://jurnalilmiah.org/journal/index.php/kultur>
- Raharja, S., & Saepudin, A. (2025). Lelagon Lestari Budayaku: Gending Propaganda Berbasis Slogan. *Keteg: Jurnal Pengetahuan, Pemikiran Dan Kajian Tentang Bunyi*, 25(1), 62–78. <https://doi.org/10.33153/keveg.v25i1.7626>
- Ruswandi, T. (2022). Pandangan Mang Koko Dalam Berkesenian. *Paraguna*, 4(1), 203–204. <https://doi.org/10.26742/jp.v4i1.1869>
- Sabaria, R., Sobarna, C., Muhtadin, T., & Masunah, J. (2025). Sundanese classical dance as a representation of aesthetic values and noble culture in West Java. *Cogent Arts and Humanities*, 12(1). <https://doi.org/10.1080/23311983.2025.2472532>
- Saepudin, A. (2015). Laras, Surupan, dan Patet dalam Praktik Menabuh Gamelan Salendro. *Resital Jurnal Seni Pertunjukan*, 16(1), 52–64. <https://doi.org/10.24821/resital.v16i1.1274>
- Saepudin, A., & Yulaeliah, E. (2021). The Jaipongan Drumming Strokes in Lagu Gedé in Sundanese Gamelan. *Harmonia: Journal of Arts Research and Education*, 21(1), 43–59. <https://doi.org/10.15294/harmonia.v21i1.28206>
- Saiful, A. A., & Saleh, S. (2025). Interaksi Musikal Pemeran Dalam Gending Karesmen Si Kabayan jeung Raja Jimbul. *Jurnal Kajian Seni*, 11(02), 132–145. <http://dx.doi.org/10.22146/jksks.101778>
- Saiful, A. A., & Sukmayadi, Y. (2023). Guntur galunggung song: text and symbolic meaning review. *Dewa Ruci: Jurnal Pengkajian Dan Penciptaan Seni*, 18(2), 95–112. <https://doi.org/10.33153/dewaruci.v18i2.4569>
- Saiful, A. A., & Sukmayadi, Y. (2024). Utilization of Music Notation as an Adaptation of Sundanese Music Learning Technology. *Korean Journal of Research in Music Education*, 53(3), 93–114. <https://doi.org/10.30775/KMES.53.3.93>
- Saiful, A. A., Sukmayadi, Y., & Masunah, J. (2025). Bincarung : Children 's Kawih Compositions Based on Sundanese Local Wisdom. *Malaysian Journal of Music*, 14(1), 82–97. <https://doi.org/10.37134/mjm.vol14.1.5.2025>
- Salley, R., Sumadi, A., & Triharini, M. (2024). Bentuk Fisik Angklung Sebagai Perwujudan Kosmologi dan Makna Sosial. *Tonika: Jurnal Penelitian Dan Pengkajian Seni*, 7(2), 79–102. <https://doi.org/10.37368/tonika.v7i2.767>
- Saputra, F. A., & Saleh, S. (2024). The Movement of Sundanese Karawitan Artist in the Indie Music From the Perspectiv of Music Sociology. *PANTUN: org/10.24821/promusika.v13i1.14962*

- Jurnal Ilmiah Seni Budaya*, 9(1), 26–39. <https://doi.org/10.26742/pantun.v9i1.3200>
- Sasaki, M. (2022). *Konstruksi Teori Laras Karawitan Sunda: Kajian tentang Lahirnya Laras Sorog Berdasarkan Analisis Struktur Musikalitas*. Universitas Pendidikan Indonesia.
- Sasaki, M., & Masunah, J. (2021). A Review of The Sundanese Scale Theory. *Harmonia: Journal of Arts Research and Education*, 21(2), 318–329. <https://doi.org/10.15294/harmonia.v21i2.32995>
- Soepandi, A. (1975). *Dasar-Dasar Teori Karawitan Sunda*. Lembaga Kesenian Bandung, 1975.
- Soraya, D. S. A., Wrahatnala, B., & Putra, R. G. (2023). Kacapi Siter Development Technique: Toward a New Style of Playing by Yayan Lesmana. *Resital Jurnal Seni Pertunjukan*, 24(3), 270–287. <https://doi.org/10.24821/resital.v24i3.8563>
- Suaman, M. (1983). *Petunjuk Praktis Untuk Belajar Menabuh Gamelan Salendro*. Bandung: ASTI, 1983.
- Supriatna, N., Midyanti, H. I., & Purwanto, A. (2024). Design Of Learning Management System To Support Musical Practice Evaluation: A Case Study On Gamelan Salendro Practice. *Journal of Engineering Science and Technology*, 19(4), 1442–1462. <https://www.scopus.com/inward/record.uri?eid=2-s2.0-85200269287&partnerID=40&md5=c0c525908bdd8ee190bb724512ccad68>
- Supriatna, N., Sukmayadi, Y., & Gunawan, I. (2025). Implementing Western musical notation in teaching Sundanese titilaras: Qualitative action research. *Cakrawala Pendidikan*, 44(1), 21–37. <https://doi.org/10.21831/cp.v44i1.79481>
- Syukur, A., Andono, P. N., & Syarif, A. M. (2024). Gamelan Land: A Multiplayer Virtual Reality Game based on a Social Presence Approach. *Journal of Metaverse*, 4(1), 1–10. <https://doi.org/10.57019/jmv.1334412>
- Toussaint, G. T. (2016). The Geometry of Musical Rhythm: What Makes a “Good” Rhythm Good? In *The Geometry of Musical Rhythm: What Makes a “Good” Rhythm Good?* Taylor & Francis, New York. <https://doi.org/10.1080/17513472.2014.906116>
- Utami, C. P. N., Supriatna, N., & Sutanto, T. S. (2022). Pembelajaran Gamelan Pelog Salendro Kiliningan Di Program Studi Pendidikan Seni Musik Upi Pada Masa Pandemi Covid-19. *Swara: Jurnal Antologi Pendidikan Musik*, 2(1), 87–94. <https://doi.org/10.17509/swara.v2i1.38475>
- Vlahopol, G. (2019). Analyst vs Performer. The Importance of Studying The Music Analysis Discipline for The Development of Critical-Analytical Thinking of Performer Students. *Review of Artistic Education*, 17(1), 69–76. <https://doi.org/10.2478/rae-2019-0008>
- Windyagiri, S. R., & Saleh, S. (2024). Garap Sekar Caturan: Embrio Drama Swara dan Gending Karesmén Karya Mang Koko. *PARAGUNA: Jurnal Ilmu Pengetahuan, Pemikiran, Dan Kajian Tentang Seni Karawitan*, 11, 47–68.
- Wiraguna, S. A., & Widjaja, R. R. (2024). Metode Penelitian Kualitatif di Era Transformasi Digital. *Jurnal Arsitekta*, 6(1), 46–60. <https://doi.org/10.47970/arsitekta.v6i01.524>
- Zanten, W. van. (1991). Sundanese Music in the Cianjuran Style: Anthropological and Musicological Aspects of Tembang Sunda. *Ethnomusicology*, 35(2), 282–284. <https://doi.org/10.2307/924742>