



## The Use of Laras in Contemporary Gamelan Music

Iwan Gunawan<sup>✉</sup>, Rita Milyartini, Juju Masunah

Universitas Pendidikan Indonesia, Indonesia

Submitted: 2022-03-08. Revised: 2022-05-22. Accepted: 2022-06-20

---

### Abstract

Gamelan instruments, which have a distinctive tone system (scale) or are called *laras*, are a challenge for contemporary composers in their working techniques. In contrast to Western music which uses a “well-tempered” system, gamelan music has a distinctive phenomenon in its tone system, including the absence of standardization of basic notes and tone intervals. This article aims to analyze the concept of *garap* and the phenomenon of the use of *laras* in contemporary gamelan music. The method used is content analysis, by taking four contemporary gamelan works that use the concept of *garap* on the use of a new scale, which is auditorily difficult to identify the scales in conventional musical knowledge. The content used is in the form of audio recordings and notations, which are then analyzed by various parametric musical aspects. The results show that there were two directions of *garap* on the tone systems (scale) in contemporary gamelan music. First, the direction of the *garap* is done by limiting the tones of the tone systems used in constructing the sound both vertically and horizontally. As in Supanggih’s “Thongkleng,” only five of the seven notes are used in the *laras pelog*. Meanwhile, in Mack’s “Crosscurrent,” only four tones are used out of the five notes in the *laras degung*. The direction of the second interpretation is to expand the tone by mixing other tones to build the impression of a new tone. In O’Neil’s “Lesson of Garden” and Gunawan’s “Noname and Nothing,” there is a chromatic approach to melodic contours to obscure the impression of conventional tone. O’Neil focuses more on melodic tone processing, while in Gunawan’s work, the tone processing is more rhythmic and random.

**Keywords:** gamelan, contemporary music, *garap* concept, *laras*

**How to Cite:** 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

---

### INTRODUCTION

Various formulations of the *laras* (traditional scale) in gamelan music have been widely discussed to this day. In the Javanese gamelan *laras*, Risnanda (2018, 99) suggests that in a set of gamelans, each *ricikan* (instrument) has a different *embat*. When played separately (independently), it will feel uncomfortable, but when sounded together with other instruments, it will blend and produce a *laras* with its own *embat*. In Balinese gamelan, the tone differ-

ence will affect the music’s atmosphere. In this case, Sugiarta (2022) suggests that the *laras slendro* has an atmosphere that is happy, cheerful, light, sad, miserable, or even romantic, while the *laras pelog* generally produces an atmosphere that gives the impression of being dashing, majestic, and sacred.

In Sundanese music, one of the figures who developed the theory of *laras*, namely Rd. Macyar Angga Kusumadinata. The theories he put forward became a reference for reviewers of *karawitan* (instru-

---

<sup>✉</sup>Corresponding author:  
E-mail: [iwan\\_gunawan@upi.edu](mailto:iwan_gunawan@upi.edu)

mental and vocal music) not only in Sundanese musicals but also used as a reference in researching the tone phenomenon in Javanese and Balinese music. Sasaki (2021:318) has written about the review of the theory of tones in Sundanese music.

One of the peculiarities of Sundanese music is the presence of a scale (*laras*) called *sorog*. In Javanese and Balinese music, only two types of *laras* are recognized, namely *slendro* and *pelog*, while in Sundanese music, there are three types of *laras*: *salendro*, *pelog*, and *sorog*. These three scales are all clearly pentatonic.

Fundamentally, what was formulated by Kusumadinata (1969) in his book entitled “Ilmu Seni Raras”, presented the differences in the intervals of the pitch and the relevance between the tones used in Sundanese *karawitan*. This is very helpful for musicians or singers in processing or using various tone differences in practice. However, even what Kusumadinata has formulated can inspire artists in his *garap* with new aesthetics. *Garap* is a system in traditional arts such as *karawitan* or *wayang* in working on their creativity (Supanggih, 2009). An example of a case in implementing this theory is the work of gamelan music by Koko Koswara (Mang Koko) and Nano Suratno. These two artists are known as Karawitan reformers.

On the other hand, the theory of system formulated by Kusumadinata, especially related to the formulation of intervals of the pitch in Sundanese musical tones, has been criticized by several parties. Hermawan et al. in Saepudin (2015) and also in Sasaki (2019) showed their disagreement on the basis of their research based on a sample of 52 waditra (musical instruments) throughout West Java. Meanwhile, Sasaki (2019) questioned Kusumadinata’s statement which states that “...*sorog* and *pelog* are scales derived from *salendro* (*gamelan salendro*).” In his conclusion, Sasaki (2019:128) stated that “...*pelog* cannot be considered a scale derived from *salendro* (*gamelan salendro*)”, while another assumption states, “Therefore, it can be presumed that *sorog* is a scale derived from *salendro*

(*gamelan salendro*).

What Sasaki said, for the authors, is a misunderstanding of the terminology of the term *pelog* in the context of Sundanese *karawitan*. Whereas Sasaki (2019:126) himself stated as follows.

To see the relationship between *salendro*, *sorog* (which he terms *madenda*), and *pelog* (which he calls *degung*), Kusumadinata developed the *salendro* scale into ‘*rakitan salendro* (*salendro* assembly)’ by imbedding tones in between the five *salendro* tones, i.e. raising or lowering the five *salendro* tone.

In the theory formulated by Kusumadinata, the term *pelog* referred to is *laras degung*. This is because, in the society of Sundanese *karawitan*, the *laras degung* is considered to be more or less the same as the *laras pelog* of Javanese gamelan. Thus, to mention the *laras degung*, Sundanese *nayaga* (musicians) often use the term *pelog* or *melog* (such as *pelog*). However, if we measure in detail the interval structure between the *laras degung* of the Degung gamelan (Sunda) and the *laras pelog* of the Javanese gamelan, there is a significant difference. Therefore, based on Kusumadinata’s theory, there are four different interval structures in Sundanese *karawitan* arranged in cents, namely:

#### Salendro

T . . S . . G . . P . . L . . T  
240 240 240 240 240

The smallest interval unit is 80 cents

#### Degung

1 . . . . 5 4 . . 3 . . . . 2 1  
400 80 240 400 80

The smallest interval unit is 80 cents

#### Madenda/Sorog

1 . . . . 5 . . 4 3 . . . . 2 1  
400 240 80 400 80

The smallest interval unit is 80 cents

#### Pentatonic Pelog (Jawar)

1 . . . . 5 4 3 . . . . 2 1  
400 133<sup>1/3</sup> 133<sup>1/3</sup> 400 133<sup>1/3</sup>

The smallest interval unit is  $133^{1/3}$  cents

The interval relation is very clear for the interval structure of the laras *degung* and *madenda/sorog*. Therefore, Kusumadinata formulated this *laras* into a *surupan* system based on the basic tone in the *salendro laras*. Thus, there are various possibilities for using these *laras* based on differences in their interval structure. However, among these possibilities, Saepudin (2015: 53) suggested that Sundanese karawitan has five *laras*, namely *salendro*, *pelog*, *degung*, *madenda* or *sorog*, and *mataraman* or *mandalungan*.

What Saepudin stated above re-emphasizes Kusumadinata's formulation regarding the relevance of the interval structure of the *degung* and *madenda* laras with the *salendro laras* based on the *surupan* system so that there are other *laras*, *mataraman* or *mandalungan*. In the theory formulated by Kusumadinata, the *mataraman laras* have the same interval structure as the *degung laras*, the only difference is the basic tone. Therefore, Kusumadinata formulated that there are two systems in the *laras* of the gamelan, namely *degung dwi suara* (two-voice *degung*) and *degung trisuara* (tri-voice *degung*) The two-voice *degung laras* means that two notes are crushed (same) with the *salendro laras*. While in the tri-voice *degung laras*, three tones are crushed (same) with the *salendro laras*. Thus, the *mataraman laras* is the *degung laras*  $3 = T$ , meaning that the 3 (na) tone on the *mataraman laras* is the same as the Tugu tone (T) on the *salendro laras*. The *mataraman laras*, based on Kusumadinata's theory, is included in the tri-sound *degung laras*, so the three tones that hit are  $3 = Tugu$ ,  $4 = Loloran$ , and  $1 = Galimer$ . If the *surupan* principle is applied to the interval structure of the *madenda laras*, then in fact there is still one *laras* that Saepudin, namely the *wisaya laras* have not mentioned. In Kusumadinata's theory, it is referred to as the *madenda laras*  $4 = P$ , or the tone 4 (ti) on the *madenda laras* is the same as the tone Panelu (P) on the *salendro laras*.

In addition, the authors agree with

Saepudin stated above that the *degung laras* are actually different from the *pelog laras*. And this is the misunderstanding in the study conducted by Sasaki. Kusumadinata's intention to use the term *pelog*, which means *degung laras* has been interpreted as the *pelog laras* in the context of Javanese gamelan.

However, there are interesting statements made by Sasaki (2019) regarding the use of *pelog* and *salendro* in gamelan music.

However, in reality, the form of '*salendro* with *pelog*' is a rare case. There are also no classical pieces found whose original melody has a *pelog* scale. The form of '*salendro* with *pelog*' is only found in new compositions or as a variation in the performances of pieces whose original melody has a *salendro* scale. Therefore, it can be assumed that the form of '*salendro* with *pelog*' is a new phenomenon.

Sasaki's statements become interesting to study in the development of contemporary gamelan music. Apart from the debate about the differences in findings in the study of *laras* (laras), there is an interesting phenomenon in the way composers work on contemporary gamelan music.

In the view of society in general, gamelan music is always seen as traditional musical work. This is because, for ordinary people, seeing the aesthetics of the music is always based on the musical instruments used. Of course, we agree that judging from the physical form, the color of the sound, the way of playing, as well as the conception of the *laras* used in gamelan instruments, there are strong indications of the values of traditional cultural heritage. However, in the process of musical creativity, whatever instrument is used is only a medium. What characterizes the aesthetic is how the musical instrument is worked out. Thus, the traditional gamelan instrument is very possible to develop and change aesthetically in new ideas or concepts so that it can be called a contemporary gamelan work.

Hardjana (2004:482) stated that, Gamelan has the potential to develop further

beyond the boundaries of its own cultural nursery. However, it must be freed from its sense of inferiority as just an ethnic culture. The theories must be developed. The concepts need to be updated.

In connection with the above opinion, there are various theories and concepts developed in understanding the phenomenon of the *laras* in gamelan music. Sindusawarno and Hardjosubroto in Sumarsam (1995) formulate the form of a chart about the interval relation between *pelog*, diatonic, and *slendro* systems, as follows.

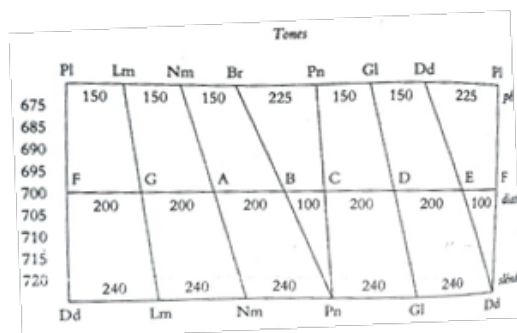


Figure 1. Sindusawarno interval relation chart

In the chart (Figure1), it is very clear that there are two similar tones in the *pelog* and *slendro laras*, whereas due to the difference in the structure of the tone intervals between *slendro* and *pelog*, the different tones complement each other, especially when compared with a diatonic structure. Thus, the chart can represent the difference in the tone of the three *laras*.

The difference in the distance between the notes in gamelan *laras* often has a psychoacoustic impact. Because every note on some *waditra* has a different overtone structure, depending on the quality of the material, size, and others. In the research conducted by Risnandar (2018:104) on gamelan tone explains that the *embat* also determines the characteristics of the *laras*. *Embat* arises from setting the pitch and the high and low notes on the gamelan tone. In the Javanese gamelan *laras*, there are two types of *embat*: *embat prenes* and *embat luh*. The *embat* issue raised by Risnandar is a phenomenon and an interesting challen-

ge for composers in working on gamelan music.

Contemporary gamelan composers have made various attempts to question the uniqueness of the *laras* in each of their compositions. This can be seen in various cases. In a study conducted by Angkasa (2015:44) on the synchronization of eastern and western cultures of Lou Harrison's work entitled "Concerto for Piano with Javanese Gamelan," it is explained how the American composer approached and adapted the different *laras* between gamelan and piano used in this work. In that case, Harrison adjusted the piano notes based on the gamelan *laras* used. A similar case happened to the band Krakatau from Indonesia. Wallach (2013, p. 121) suggested that based on an analysis of the band's works, several western musical instruments are adjusted to the *laras* used for the tones of traditional Sundanese gamelan.

Meanwhile, there are cases where the opposite occurs to find a solution to the problem of differences in the *laras* between western instruments and gamelan. In Ramaer (2004:30), Sinta Wullur, a Dutch composer, stated the problems regarding her artistic concept.

Each time I made a composition, I searched for a creation that could carry the identity of Indonesian as well as Western culture. But when I composed for a traditional gamelan orchestra I missed the possibilities of the 12 tones in an octave and felt limited by the tone problems when combining western instruments with the gamelan.

To find a solution to this problem, Wullur was inspired by her experience when she visited her friend, a Danish percussionist who had ordered a set of Balinese gamelans with chromatic *laras*. Based on this, she then ordered a Javanese gamelan with a similar idea which was later called the Multifoon Gamelan.

The idea of adapting the diatonic scale to the gamelan can also be found in several regions in Indonesia. Yuliana (2013) in her research, suggested that in the de-

velopment of gamelan creations, there is a group called "Degung Dedikasi." This group designed gamelan with a diatonic scale to accompany pop songs with grammatical tonal music for commercial purposes.

Some of the cases presented above are the ideas of composers who have thought of adjusting the dichotomy of the difference in *laras* between the well-tempered system and the *laras* on gamelan instruments. However, among contemporary gamelan composers, some composers do not really care about differences in *laras* in the context of eastern and western culture, but all these differences in *laras* are used as a vehicle for finding new ideas, namely combining various tones. This concept has been implied in traditional gamelan work, especially the gamelan music of *pelog salendro* in Sunda. In this case, Suparli (2010, p. 158) argued that

...*laras* contained in the *gamelan pelog salendro* mean that those that are manifested in the gamelan only consist of two *laras*, namely *laras salendro* and *laras pelog*. Meanwhile, *laras degung* and *laras madenda (sorog)* in the context of the *gamelan salendro pelog* are only played on vocals, or waditra rebab, using *gamelan laras salendro*.

Suparli's view is in line with what was stated by Sasaki (2019) that "...there is an interesting phenomenon, that is the fixed pitch instruments of gamelan are in the *salendro* scale, but its vocal and *rebab* often modulate into *sorog* scale or *pelog* scale."

Based on the principle of combination of *laras* or scales in traditional Sundanese gamelan, Kusumadinata in Santosa (2016) has formulated the Dasa Nada system based on the *salendro* tone which consists of five notes with each tone interval of 240 cents, and then each interval is divided two to 120 cents, to one *gembyang* to 10 tones.

These various concepts or theories open various possibilities for composers to seek new ideas in gamelan music creativity. For example, one of the composers who focused on working on tone combinations

on Balinese gamelan was I Made Arnawa. Arnawa (2010, p. 11) asserted that the idea of his work entitled "Perndro II" is a work that was inspired when reading the book of Prakempa, namely a Balinese gamelan lontar translated by I Made Bandem. In his work, the *laras* used is a mixture of tones between *pelog* and *slendro* tones.

Based on the various examples above, the paradigm of contemporary gamelan music can not only be seen in the context of local culture but must be viewed as part of global musical culture in the context of mutual influence between cultures and the artists who perform them.

Of the many contemporary gamelan composers, some works attract the authors' attention to be discussed in more detail; How do composers make *garap* of tone system/*laras* in contemporary gamelan music?

## METHOD

We need an appropriate method to know the concept of *garap* on a piece of music. The method used is content analysis. According to Krippendorff in White et al. (2006), the content analysis method is a research technique to make conclusions that can be replicated and valid from text or other meaningful material within the context of its use.

Based on observations of contemporary gamelan works that have issues regarding the use of a *laras* that is considered interesting, four works with unique working concepts were selected, namely: (1) Thongkleng by Rahayu Supangga; (2) "Crosscurrent" by Dieter Mack; (3) "Lesson of The Garden - Water Way" by Michael O'Neil; and (4) "Noname & Nothing" by Iwan Gunawan. These works were selected based on observations and auditive analysis of the *garap* concept's uniqueness in the *laras*. The uniqueness of the selected works is the impression of using a new tone that has never been heard in previous gamelan works.

Data were collected through the study of audio-visual documents and scores

for the selected works. Documents and scores were analyzed for parametric musical aspects to determine the concept of *garap* on the *laras/laras*.

## RESULTS AND DISCUSSION

### Limitation of the Number of Tones

In describing the analysis process of the four works mentioned above, they can be grouped into two parts based on each composer's technique of *garap*. The first *garap* technique is the technique of limiting the use of tones, as in "Thongkleng" by Rahayu Supanggah and "Crosscurrent" by Dieter Mack.

The concept of limiting the tones available in gamelan has actually been formulated by Kusumadinata, especially regarding the application of *pelog* (Javanese) tones in Sundanese gamelan. Kusumadinata's theory is reaffirmed by Suparli (2010) that, of the seven tones contained in the *pelog*, only three tones always function as the main notes, namely the *tugu*, *loloran*, and *galimer* tones. The number of tones on the *pelog* of the Sundanese gamelan is limited to only five tones. Kusumadinata's theory is known as "jatuligasopa", *jawar* starts from the tone of *tugu*, *liwung* starts from *galimer*, and *sorog* starts from *panelu*.

In work "Thongkleng," there are things in the use of tone. From a quick observation, it can be assumed that this work uses a mixture of two *laras* namely *pelog* and *slendro*. This is because there is no strong indication of a particular *laras* to be felt audiotively. However, after the authors tried to make a notation transcript of the work, authors were deceived. It turns out that this work only uses the *pelog*. Is this phenomenon due to the authors' hearing limitation? Or is there another reason?

In general, this work presents a dialogue about two characteristics of instruments with different sound colors due to the material characteristics of the instruments, namely the *pencon* instrument and the *bilah* instrument. But other than that, the texture of the melody made is very clear about the impression of dialogue. For

more details, please see the transcript of the notation below.

**Thongkleng**  
Notasi Transkrip

Rahayu Supanggah

Gamelan Pelog

**Figure 2.** Excerpt from the work "Thongkleng", Transcript by the authors.

If we look at the examples of notation above, it can be concluded that the concept of a "sahut-sahatan" melody (question and answer/dialogue) is the basic principle of this work. The concept can be divided into two; First, "sahut-sahatan" alternately, and second, "sahut-sahatan" simultaneously like the *kotekan* principle in Balinese gamelan. However, the authors' concern is how to organize the tones. The number of tones used in this work is five tones out of seven (*laras pelog*). The tones are 6 (nem), 5 (mo), 4 (pat), lu (3), 2 (ro) in the Javanese *kepatihan* system or 1 (da), 2 (mi), 3- (ni), 3 (na), 4 (ti) in the Sundanese *damina* system. For more details, please see the example notation below.

Note: the tone symbols (numbers) use the Javanese and Sundanese systems

**Figure 3.** The tones used in the work "Thongkleng"

However, the three tones (marked by squares), namely 5, 4, 3 or 2, 3-, 3, are very dominant, while the other tones, namely 6 (nem) or 1 (da) and 2 (ro) or 4 ti) sound very rarely. Because the melody swirls in the closely spaced interval region, the impression of the melody feels like floating around for nothing. Furthermore,

if we try to play these notes improvised, it will be felt a new tone. This attracted the authors' attention, that through the work "Thongkleng", Supanggih as a composer has offered a new technique in working on the existing tones without making new tones. The gamelan used in this work still uses the gamelan laras pelog as the gamelan instruments used in traditional works.

Meanwhile, the technique of limiting the number of tones in the work "Crosscurrent" has a different case. This work uses the *Degung gamelan*, but auditorily the characteristics of the gamelan tones as in the traditional context can no longer be felt. This is due to the unique and unusual processing of the melody as the Sundanese artists process the melody in the laras. For example, please see the example notation below.

conds, large septime, and more quarts. The example of the notation is presented.



Figure 5. Analysis of intervals in Tutti melody of "Crosscurrent"

The movement of these intervals really colors this section, while other intervals are less prominent. In addition, the processing of the melody in this section seems to be horizontal, but because the sound is left long (let ring), certain chords are formed vertically. The chord is like the notation example below.



Figure 6. Melody vertically/chords on melody processing "Crosscurrent"

The image shows a musical score for an excerpt of the 'Tutti' melody in 'Crosscurrent'. It includes parts for Peking, Panerus, Bonang, Jengglong, Kendang/Kuliner/Saron 1, and Gongg. The score is divided into two systems, starting at measure 19 and 20. Annotations include: 'Attaca, very aggressive and pushing let all notes ring, except the ones marked otherwise. Tempo might be a little slower but not below 2 ca. 60' and 'This kuliner is different texture, including the bar lines'.

Figure 4. Excerpt of Tutti melody in "Crosscurrent"

If we look at the notation above, there is a distinctive interval movement in processing the melody in the *degung laras*. The movements of these intervals are small se-

In the aesthetics of traditional gamelan music, processing melodies that have the impression of a chord is perceived as a "dissonant" sound, so that in processing the melody, the vertical sound impression is often avoided.

The processing of these four tones becomes the basis for various sound processing in the next section, coupled with the sound colors of gongs and *jenglongs* which are often played on the side and produce other tones based on the overtone structure of the instrument. Thus, the way of beating the *waditra gong* and *jenglong* can auditorily disguise the identity of the conventional *degung laras*. In addition, interval jumps that are more than one *gembyang* (octave) bring a new impression to the technique of processing the melody in the *degung laras*, because in traditional *degung laras* such extreme interval jumps are rarely found. The musical phenomenon that the authors have mentioned above is a small part of the whole work of "Crosscurrent" because it is too complex, the authors cannot fully describe it in this paper. However, the things that the authors found

can at least prove that innovative efforts to work on the *laras* on the *degung* gamelan can be done using one of the melodic processing techniques as Mack did in his work "Crosscurrent."

**Expanding the Number of Tones**

The second technique is to expand the number of tones by combining pelog and slendro tones, as in Michael O'Neil's "Lesson of Garden" and Iwan Gunawan's "Noname and Nothing."

In the work "Lesson of Garden," the *laras* use a mixture of gamelan with pelog and *slendro laras* simultaneously. Thus, the mixture of the two *laras* auditorily produces new *laras* characteristics. One of the reasons for this is the technique of melodic processing which deliberately hides the character of the *pelog* and *slendro laras* as in traditional gamelan music. Before going any further, look at an example of the notation below.

Lesson Of The Garden  
Water Way

Michael O'Neil

**A** Notasi Transkrip

**B**

**C**

**Figure 7.** Excerpt of rewards from "Lesson of The Garden-Water Way". Transcript by Iwan Gunawan

If we look at the notation above, we can be sure that the striking pattern in this work generally has the same concept as the striking pattern in traditional gamelan. This can be seen from the slentem striking pattern as the main musical composition (*gendhing*) of the song and the slendro and pelog beats as an interlocking. However, the concept of interlocking in this work is

different from that interlocking of the traditional gamelan style. The difference lies in the "typical" intervals (micro-intervals from a mixture of *pelog* and *slendro laras*) and flows so that auditorily builds a new sense of *laras*.

Technically, the interlocking in this work is built in two ways. The first is a melody with a static repetition (played by a *slendro bilah* instrument), and the second is a melody with a progressive repetition (played by a *pelog bilah* instrument). Thus, the changes in the melody line can be felt differently if the repetition of the melody in the *pelog laras* makes changes while the beat of the *slendro* melody continues. Through this technique, the texture of the melody can be felt to have a distinctive interval jump.

After the writer conducts further analysis, there are certainly similarities between the interlocking described above and the melodic contours of Steve Reich's "Piano Phase". The texture of the melody is like the notation example below.

**Figure 8.** An example of a melody contour "Piano Phase" by Steve Reich. Transcript by Iwan Gunawan

The similarity of the interlocking concept with the work "Lesson of The Garden-Water Way" can be seen in the following example of the notation.

**Figure 9.** The melodic texture section of the work "Lesson of The Garden- Water Way." Transcript by Iwan Gunawan

However, there are fundamental differences between these two works. In the work "Piano Phase," the change in melody texture is principally due to tempo processing, while in the work "Lesson of The Garden" the change in melody texture is



caused by processing the notes themselves (based on micro intervals) which are a mixture of *slendro* and *pelog laras*. Regardless of the relationship between the two works, what Michael O’Neil did in his work “Lesson of The Garden” has the issue of offering a new concept in gamelan music.

The three examples of works above are examples of cases that, in the authors’ opinion, are works that can prove efforts to innovate the *laras* in gamelan music. Many composers still carry out similar work concepts but produce very different works, including works by composers I Made Arnawa and Wayne Vitale using Balinese gamelan. All the works mentioned are a source of reference and inspiration for writers in the creative process of creating new works.

Meanwhile, the work “Noname and Nothing” has a similar idea: combining *pelog* and *slendro laras*. However, the technique of treatment is very different.

In this section, the authors would like to briefly describe the authors’ own efforts in working on the *laras* in gamelan. The authors present the result of studies and observations made some time ago regarding the phenomenon of the *laras*, especially the *laras/scales* on Sundanese karawitan. From these experiences, the authors found a *laras* that was applied to our own work entitled “Noname and Nothing”. However, before discussing the work, the authors would like to convey the chronology and the framework as the basis for the emergence of the idea of the *garap* concept on the *laras* in the work.

In addition to making observations about the phenomenon of the *laras* in the context of Sundanese culture, the authors also have the experience of learning about the *laras* in the context of Western culture, especially about the modal, tonal, and tonal systems. Based on this experience, some things really attract the authors’ attention, especially the phenomenon of Western music that has occurred from the early

20th century until now. Various musical phenomena in the dodecaphony or serialism systems in the works of Schonberg, Webern, Ligeti, Stockhausen, and others to the concept of “preferred piano” from John Cage greatly give a discourse on the creative process of authors in creating gamelan and non-gamelan music. One thing that the authors have seen and realized as a result of observing several works by these Western composers is the creation of the concept of a *laras* on the *bonang* and *rincik* instruments (*bonang panerus*) in the works “Fonem” and “Nyurup” (2005). The *laras* on the instrument is a mixture of *pencon laras pelog* and *slendro* arranged randomly based on the high and low of the sound. For clarity, please see the image below.



Note: tone symbols (numbers) using the Sundanese system (*damina*)

Figure 10. The *laras* of the Bonang and Rincik instrument in the work “Fonem”

From the arrangement of *pencon bonang* and *rincik* as shown above, the order of the tones is no longer arranged linearly (from lower to higher notes or vice versa) but arranged randomly. Thus, even though in the notation system, it seems that the notes are moving in steps, the notes are jumping auditorily. The next thing, the authors are interested in the micro interval difference between 3 *pelog* notes with 3 *slendro* notes and 4 *pelog* notes with 4 *slendro* notes. This phenomenon of micro-interval differences is also seen in the *laras* of Balinese gamelan, including the *pangumbang-pangisep*. It is just that in the work of “Fonem” this aspect is not presented vertically (as in Balinese gamelan) but horizontally. For clarity, please see the example notation below.



**Figure 11.** The example of bonang and rincik melodies in the work “Fonem”

Through the concept of the *laras* on the bonang/*rincik* instruments as described above, it can be said that the way of playing the melodic texture on the bonang/*rincik* instrument in the work of “Fonem” is technically the same as playing the traditional gamelan, but the sound is very different. This became the authors’ starting point in developing the *laras* in their subsequent gamelan works.

When one of the authors was commissioned to arrange Steve Reich’s “Six Marimbas” for the International Gamelan Festival Amsterdam in 2010, he was confused when he adapted the *laras* used. The problem is that in the work “Six Marimbas” the *laras* use a “well-tempered” system while the *laras* in gamelan is not. Various attempts and experiments have been carried out by the author to find solutions to these problems. The results of these efforts include the author finding a 10-laras from a mixture of *pelog* and *slendro laras*. And this is following the theory formulated by Sindusawarno in the description above. The following is a sequence of 10 tones that became the author’s basic concept in working on gamelan music with a *slendro pelog laras*.

Gamelan Slendro Pelog Tumbuk nem

Dasa Nada from a mixture of Gamelan Laras  
Pelog Slendro

Note: number notation using Javanese and Sundanese karawitan systems

**Figure 12.** Tones in the Dasa Nada system

The explanation above can be concluded that there are four tones, namely “5/1”, “4/2”, “3/3”, and “2/5”. In terms of the use of symbols and terms for both *pelog* and *slendro laras*, they are always the same, but the sounds are actually different. For the comparison of the *pelog* and *slendro* sounds on the notes “5/1” and “2/5” the difference is very clear. While the other two tones, namely the tone “2/4” and “3/3” when compared the sound between the *pelog* and *slendro laras* have very slight differences due to the micro-interval aspect.

The author’s two experiences in working on the work of “Fonem” and the arrangement of “Six Marimbas” as described above, coupled with various references to contemporary music from Western composers, resulting in a new work entitled “Noname and Nothing”. The application of the Dasa Nada system in this work will be described in detail.

The work “Noname and Nothing” uses instruments with configurations, namely, Saron and *Peking slendro*, Saron and *Peking pelog*, *demung* and *slentem slendro*, *demung*, and *slentem pelog*, *bonang* “Eusleum” (a mixture of *pencon pelog* and *slendro*), *gong slendro*, and *Kendang* and *kulanter*.

The initial idea for this work came when the author watched Brian Ferneyhough’s “Bone Alphabet” on YouTube. This work uses a variety of percussion instruments played by one person. The percussion instruments that do not have a *laras* move randomly but the high and low sounds of these instruments compositionally make the impression of a certain *laras* (although this impression is very difficult to describe). In general terms, it can be said that a *laras* used in musical works such as major, minor, *pelog*, *degung*, *slendro*, *dorian*, and so on, always brings a certain impression/atmosphere. Therefore, in the process of interpretation, musical works that use the *laras* will be easier to interpret than musical works that do not have a *laras*. This phenomenon occurred when the author heard the music “Bone Alphabet” by Brian Ferneyhough. When the author

first heard the work, it was a bit difficult to accept it psychologically, but after hearing it over and over and trying to understand this work, he finally found interesting things. That is the initial motivation of the author in working on the work “Noname and Nothing”.

In the work “Noname and Nothing,” the nine-laras used are arranged in such a way that it has a variety of sound textures, ranging from melodic, to percussive sounds, both horizontally and vertically. To make it clearer, please see an example of notation from the beginning of this work in Figure 13.

### Noname & Nothing

**Figure 13.** The beginning of the work “Noname and Nothing” with *gamelan slendro pelog tumbuk A*

If we look at the notation above (especially the beginning), each striking instrument has an independent melodic texture. In this section, the beats on each instrument are not related to each other except at the end of the melodic sentence which emphasizes the difference in the sound of the tone “3 (na/lu) between the waditra

with the laras pelog and the waditra with the laras slendro. Another aspect is that the pitch is far and random, and the articulation of long and short notes gives the impression of a more percussive sound. In the next section, the sound texture can be divided into two parts, namely the melody and the chord. The melodic part of the bonang instrument still presents the impression of a “random” melody because of the concept of the *laras*. Meanwhile, the chords played by the *gong*, *demung*, and *saron/peking* seem to respond to the bonang melody with vertical and dissonant tones.

Another thing that will be described in this work is tone processing at the end. In this section, almost all instruments play short sounds to produce a percussive sound and avoid a melodic impression. In addition, the dialogue tone “2 (ro)/4 (ti)” and “3 (lu)/3 (na)” from the two tones is very dominant, to question the micro-interval differences between the two tones. For clarity, please see the example notation in Figure 14.

**Figure 14.** The texture of the percussive sound at the end of the work “Noname and Nothing”

The *garap* concept of the *dasa nada* system in this work is based on music processing, including 1) creating a melodic texture with a random impression based on the high and low of the sound, the duration of the sound, and the sound color of the instrument used, 2) processing the horizontal and vertical tones, 3) considering the micro-interval tones, 3) creating “percussive” sounds from the configuration of

the instrument and the laras used.

## CONCLUSION

The results of the analysis process can be concluded that there are two directions of *garap* of the composers in using the tone system (*laras*) in gamelan music, namely limiting the number of tones, and expanding the number of tones. These two things are done to specifically affect the characteristics, characters, *embat*, and emotions of the contemporary music produced. In Supanggah's work, *laras pelog*, which has seven tones, only uses five tones, while in Mack's, the five-tone *laras degung*, only four tones are used. Meanwhile, in the works of O'Neil and Gunawan, they use a "chromatic" approach based on a mix of 10 tones of *pelog* and *slendro laras*.

In developing the aesthetics of gamelan music, the use and processing of tones with techniques that limit the use of tones can produce the impression of a new tone even though using a conventional tone. The analysis of the four works in this study is only a case or phenomenon of compositional techniques that focus on the use of *laras* in gamelan music. To understand more deeply the uniqueness of the four works, further research is still needed to obtain a more detailed picture of musical concepts and phenomena. However, this paper can inspire other composers to work on contemporary gamelan music.

## REFERENCES

- Angkasa, L. (2012). *Lou Harrison's Concerto for Piano with Javanese Gamelan: Synchronization of East and West* [Rice University]. <https://scholarship.rice.edu/handle/1911/87698>
- Arnawa, I. M., & Haryanto, T. (2010). *Pendro II*. ISI Denpasar. <http://repo.isi-dps.ac.id/id/eprint/98>
- Bowen, G. A. (2009). Document analysis as a qualitative research method. *Qualitative Research Journal*, 9(2), 27-40. <https://doi.org/10.3316/QRJ0902027>
- Hardjana, S. (2004). *Musik Antara Kritik dan Apresiasi*. PT Kompas Media Nusantara.
- Harnish, D., & Wallach, J. (2013). "Dance to Your Roots": Genre Fusions in the Music of Indonesia's Krakatau. *Asian Music*, 44(2), 115-134. <https://doi.org/10.1353/amu.2013.0014>
- Mack, D. (2004). *Ilmu Melodi*. Pusat Musik Liturgi.
- Ramaer, H. (2004). Sinta Wullur and the Diatonic Gamelan. *Balungan*, 9-10, 30-33. [http://www.gamelan.org/balungan/back\\_issues/balungan\(9-10\)/](http://www.gamelan.org/balungan/back_issues/balungan(9-10)/)
- Risnandar. (2018). Pelarasan Gamelan Jawa. *Dewa Ruci*, 13(No. 2), 98-113.
- RMA Koesoemadinata. (1969). *Ilmu Seni Raras*. Pradjna Paramita.
- Saepudin, A. (2016). 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>
- Sasaki, M., & Masunah, J. (2020). Sorog and Pelog Scales in the Vocal and Rebab of Sundanese Gamelan Salendro. *Advances in Social Science, Education and Humanities Research*, 419, 125-128.
- Sasaki, M., & Masunah, J. (2021). A Review of The Sundanese Scale Theory. In *Harmonia: Journal of Arts Research and Education* (Vol. 21, Issue 2). <https://doi.org/10.15294/harmonia.v21i2.32995>
- Supanggah, R. (2009). *Bothekan Karawitan II: Garap*. Surakarta: ISI Surakarta
- Smith, O. (2019). *GENETIK: An analytical study of the contemporary gamelan music of Dewa Ketut Alit* [University of Sydney]. <https://ses.library.usyd.edu.au/handle/2123/22218>
- Sugiarta, K., Gede, I., Sugiarta, A., & Suartaya, K. (n.d.). Komparasi Teknik Pelarasan Nada Gamelan Gong Kebyar Pande Sukma Di Desa Tumbakbayuh Dan Pande Lanus Di Desa Tihingan. *Murda*. Retrieved June 2, 2022, from <http://repo.isi-dps.ac.id/3566/>
- Sumarsam. (1995). *Gamelan: Cultural In-*

- teraction and Musical Development in Central Java*. The University of Chicago Press.
- Suparli, L. (2010). *Gamelan Pelog Salendro-Induk Teori Karawitan Sunda*. Sunan Ambu Press.
- White, M. D., & Marsh, E. E. (2006). Content analysis: A flexible methodology. *Library Trends*, 55(1). <https://doi.org/10.1353/lib.2006.0053>
- Yuliana, A. (2013). *Degung Kreasi: Kreativitas Dalam Fenomena Karawitan Sunda* [Universitas Gadjah Mada]. <http://etd.repository.ugm.ac.id/penelitian/detail/58806>