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Creation of "Salen-Log Counterpoint": intercultural music between karawitan and orchestra through practice based research

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ABSTRACT

This study explores the process of creating a musical composition titled *"Salen-Log Counterpoint"* as an effort to adapt the aesthetics of Sundanese *karawitan* music within the format of a Western orchestral ensemble. The work was developed as part of an intercultural approach within the field of contemporary music composition. The aim of this study is to reveal the artistic process and technical strategies involved in transforming *karawitan* musical idioms into the systems and organology of the orchestra. This research employs a practice-based method, involving Wallas' four-stage model of the creative process: preparation, incubation, illumination, and verification. The findings indicate that a contrapuntal approach combining *pelog*, *salendro*, and Western tonal systems can produce a distinct new sound texture, despite presenting technical and interpretative challenges. Adjustments in notation and playing techniques are key to maintaining a balance between aesthetic concepts and musical feasibility. This study contributes to the discourse on intercultural composition and the creative practice of integrating traditional aesthetics into contemporary musical works.

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1. Introduction

Contemporary globalization has fostered increasingly intensive cross-cultural interconnectedness, and as a result, musical creation has shifted from purely local expressions to dialogic intercultural forms. Music is no longer solely a representation of a particular culture but has become a medium for negotiating identity and aesthetics within a complex global landscape [1]. The process of creating intercultural music is far from simple. It requires a profound understanding of the characteristics and aesthetics of each culture being integrated. This aligns with Savage's view that every musical culture possesses a unique "evolution" and demands deep knowledge to be understood and adapted within another cultural context [2]. The fusion of local musical traditions with Western musical systems is not a new phenomenon, yet it continues to present significant challenges in creative practice, especially when differences in tonal systems, playing techniques, and aesthetic philosophies must be reconciled within a single composition. These challenges mark the starting point of a creative process that can ultimately give rise to new and innovative musical works. In Indonesia, intercultural musical works have demonstrated how local musical traditions can be integrated with Western elements to produce compositions that not only enrich the national musical repertoire but also expand the aesthetic boundaries of music itself. The work *"Salen-Log Counterpoint,"* conceived by the researcher, exemplifies how elements of *karawitan* can be harmonized with Western orchestral instruments. Echoing Trainor's assertion that *"the fusion of musical traditions often leads to the creation of new musical languages,"* this composition illustrates how the merging of

two cultures can generate new musical aesthetics [3]. The compositional and interpretative innovations applied in this work are not merely cultural fusions but also reflect a process of cultural transformation within the currents of globalization.

Through artistic research focused on intercultural music creation, we can observe how elements from different cultural backgrounds can be integrated into a cohesive composition. This process involves creative approaches such as quoting musical elements from one culture into another and combining distinct aspects to explore new possibilities in musical technique and style. Such approaches reflect the dynamic complexity inherent in intercultural music-making and offer deeper insights into the role of music as a medium of intercultural communication. As Campbell puts it, *"music can serve as a bridge between cultures, enabling a deeper understanding and appreciation of diverse cultural expressions"* [4]. Intercultural music is not merely a form of artistic expression; it is a reflection of cultural interactions occurring in today's globalized world. *"Salen-Log Counterpoint"* demonstrates how cultural identity can be preserved and developed through the integration of new elements from other cultures. This study contributes not only to the academic discourse in musicology and ethnomusicology but also opens pathways for further exploration in creating musical works capable of bridging increasingly interconnected global cultures. As Crane emphasizes, *"the global circulation of music brings with it the potential for new forms of cultural expression and understanding,"* affirming the importance of research and creation in intercultural music [5]. *"Salen-Log Counterpoint"* is an attempt at intercultural music creation that adapts Sundanese *karawitan* idioms into the medium of Western orchestration. This idea did not emerge in a vacuum but grew out of the composer's extensive engagement with traditional music and an interest in the contrapuntal structures of Steve Reich's repetitive and minimalist style. Unlike thematic *karawitan* arrangements, this composition challenges the dialectical integration of the *pelog* and *salendro* tuning systems with Western tonality within a contrapuntal framework. This endeavor brings about practical issues such as microtonal mismatches, the limitations of Western instruments in accommodating the ornamentation techniques of *karawitan*, and interpretative resistance from orchestral musicians unfamiliar with non-Western idioms.

Previous studies on intercultural composition tend to emphasize conceptual or sociological aspects, rather than the creative technical dimension. For instance, Crooke et al. discuss *"Music, social cohesion, and intercultural understanding,"* yet do not delve into issues of organology or the rehearsal practices of musicians [6]. Forchu through his work on Igbo hip hop, explores the synthesis of African and Western music but focuses primarily on rhythmic idioms [7]. Studies Khan & Sahoo; and Wood & Homolja on diasporic music touch on transcultural practices but do not concretely address the implementation of microtonal systems within orchestral spaces [8], [9]. Even in practice-based artistic research by Riley, the need for reflection from within the creative practice itself remains underdeveloped [10]. This study, therefore, aims to bridge this gap. Theoretically, this work draws on the strategic not merely descriptive—application of idiom transfer, cross-cultural element integration, and the transformation of musical systems into new contexts. The research seeks to explore artistic and technical strategies for transforming Sundanese *karawitan* idioms into the orchestral format through a practice-based approach. This includes examining how technology mediates aesthetic idiom differences and how composer–musician communication dynamics shape the final realization of the work. The contributions of this study lie in: (1) presenting a reflective and technical process in practice-based intercultural music creation; (2) developing methods for adapting *laras* and *karawitan* idioms into the organology and orchestration of Western music; and (3) mapping the interpretative challenges faced by musicians in realizing complex intercultural compositions.

2. Method

This research adopts a practice-based research (PBR) approach, wherein artistic practice serves not only as the object of inquiry but also as a method and a source of knowledge production [11], [12]. This approach is appropriate because the primary object of this study, the composition *Salen-Log Counterpoint* is an original work, making the creative process itself the core site for exploration and articulation of ideas. In this context, the composer acts as a

practitioner-researcher, actively reflecting on, revising, and constructing knowledge through the process of composition. The study involves several participants: the composer as the practitioner-researcher, musicians from the Bandung Philharmonic as technical and interpretative executors, and Olivier Ochanine (conductor) along with Michael Hall (artistic director) as conceptual facilitators and mediators between ideas and practice. The research design is cyclical and reflective, encompassing five primary stages: preliminary study, digital exploration, score development and revision, collaborative rehearsal, and realization and documentation of the work. Throughout the research process Table 1, several tools and media played crucial roles. Dorico Pro 4 was used to write the musical notation, simulate audio, and revise the score in detail. The Spitfire Symphonic Orchestra VSTi provided high-quality orchestral sounds for virtually testing musical ideas. Additionally, video and audio documentation from rehearsals and performances were used to evaluate the alignment between the score and performative interpretation. All exploration and revision processes were recorded in a chronological log, including informal discussions with musicians, notation changes, and adjustments in playing techniques. Data validity in this study was established through *practice triangulation*, which comprises three elements: (1) testing musical ideas through digital simulation, (2) interpretative testing through live rehearsal with musicians, and (3) observation of performative realization in concert. Reliability was ensured through systematic documentation of the creative process, score revision tracking, and recording of all relevant interactions. This combination not only enables transparency in the artistic process but also opens possibilities for replicating or adapting similar approaches in other artistic research contexts

Table 1. Research Procedure

Stage	Main Activities	Objective	Output
Preliminary Study	Literature review, study of intercultural scores, counterpoint theory, *pelog* & *salendro* tuning	To identify potential syntheses and conflicts between musical systems	Conceptual framework and artistic inspirations
Digital Exploration	Score and audio simulation using Dorico Pro 4 & VSTi	To test the compatibility of *karawitan* motifs with Western systems	Draft structure, melodic sketches, and texture experiments
Score Development	Score writing with consideration of articulation, ornamentation, and accentuation	To produce a playable score without compromising *karawitan* aesthetics	Final score version ready for rehearsal
Collaborative Rehearsal	Joint rehearsals with Bandung Philharmonic and conductor Olivier Ochanine	To test interpretation, gather technical and aesthetic feedback	Score revisions based on musician interaction and interpretation
Realization & Documentation	Symphony concert performance of *The Scottish*, audiovisual documentation	To reflect on the performative realization and musical response to the composition	Concert video, performative analysis, and final reflections

3. Results and Discussion

3.1. Results

The creative process is an essential phase that every artist must undergo in the production of an artwork. Each artistic creation follows a unique path and approach within its creative process. During this phase, the artist engages in a variety of strategies and approaches to overcome personal limitations and constraints [13]. The creation of *Salen-Log Counterpoint* reflects Wallas's four-stage model of the creative process in a comprehensive and layered manner [14], see Fig. 1.

Fig. 1. The Four Stages of Creative Thought, as proposed by Wallas

- In the preparation stage, the researcher conducted in-depth studies of Sundanese *karawitan* idioms, including *pelog* and *salendro* tuning systems, the techniques of *carukan*

and *merean*, as well as exploring contrapuntal techniques and additive rhythms from Western composers such as Steve Reich.

- The incubation stage occurred when the researcher encountered technical challenges in integrating the microtonal system of *karawitan* with the Western equal temperament system via Dorico Pro software. Another difficulty arose in adapting the ornamentation techniques of the Sundanese *tarompet* to the Western trumpet. These constraints led to the application of a "minimax" principle, turning limitations into a source of creative strength.
- The illumination stage emerged through artistic solutions, including the blending of tuning systems compensated through timbral and rhythmic textures. The transformation of additive meters into 4/4 time, accented strategically, served as a rhythmic device. This resulted in a sound character that was not a literal juxtaposition, but rather an idiomatic synthesis.
- Finally, during the verification stage, the composition was tested in rehearsals with musicians and through live performance. This opened up opportunities for revisions in notation, playing techniques, and interpretation, based on direct responses from musicians and experiential insights from the performance context.

1) Preparation

The composer initially developed a deep appreciation for and interest in analyzing minimalist music compositions, particularly those by American composer Steve Reich. One of the most influential works was Reich's *Counterpoint* series, including pieces such as *Electric Counterpoint*, *New York Counterpoint*, and *Piano Counterpoint*. These compositions are characterized by the use of a single melodic motif that is developed across multiple instruments, each entering at different starting points, creating an antiphonal or echo-like effect between instruments. According to Chong (in Nainggolan & Jatmika), there are two types of counterpoint: free counterpoint and strict counterpoint [15]. Free counterpoint allows for freedom in pitch selection while constructing contrapuntal textures, whereas strict counterpoint adheres to formal rules in its construction. Fig. 2 illustrates two ensembles performing melody (above) and accompaniment (below). Each instrument enters at its own starting point and plays the same melody without following strict contrapuntal rules. The harmonies that emerge are accidental, resulting from the opposing melodic movements. This demonstrates the application of free counterpoint. Upon closer analysis, the musical ideas in these works reveal characteristics such as the use of a mono chord, repetitive structures, spiritual atmosphere, rich variation, and room for spontaneity and improvisation—qualities that resonate closely with the aesthetics of *karawitan* music [16].

However, Reich's compositions largely rely on a homogeneous tonal system. This raises an important question: can such melodic structures be developed using a different tuning system? In this context, the composer recalled that Sundanese *karawitan* employs two main tuning systems—*laras salendro* and *laras pelog*. Both systems possess frequency structures that are distinct, especially when compared to the well-tempered system of Western instruments. When tones from these two *laras* are played simultaneously or in sequence using similar melodies, auditory discomfort or perceived dissonance may arise. This phenomenon is supported by Helmholtz's theory in Lipps, which describes *roughness*—a type of harsh dissonance perceived as unpleasant [17]. However, Lipps notes that roughness alone does not define dissonance, as dissonance emerges from the relationship between tones rather than from a single tone. In the context of blending *salendro* and *pelog* scales, this offers a compelling space for experimentation. Further, the *salendro* and *pelog* tuning systems have interval structures that differ significantly from Western tonal systems. This is due to the microtonal nature of *karawitan* instruments, which are not uniformly tuned like well-tempered Western instruments.

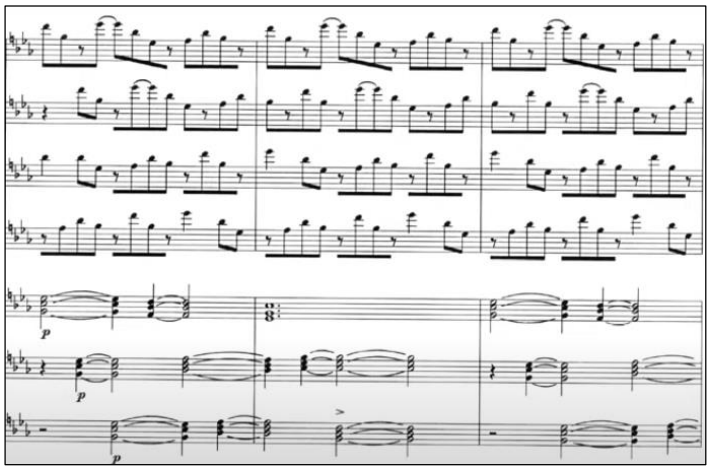

Fig. 2. Excerpt from Steve Reich's "Electric Counterpoint"

Fig. 3 compares the interval differences among the three tuning systems. The Western system exhibits relatively consistent intervals. *Salendro* also shows consistency but with different values, while *pelog* displays a wider variation in intervals. This variability is a key contributor to dissonance. The richer the pitch spectrum, the greater the potential for dissonance. Similar distinctions also arise between pure tones and complex tones containing a diverse range of spectral frequencies [17]. Integrating *salendro* and *pelog* with the Western system within the framework of free counterpoint composition may result in a distinctly intercultural musical impression. Technically, several approaches may be used to achieve this. One such approach is adopting techniques from the aesthetic principles of *karawitan*, such as the *carukan* pattern—known in Western music as interlocking. This technique distributes parts of a rhythm among different voices, where each voice contributes to the overall pattern by playing on weak (arsis) and strong (thesis) beats, or even finer subdivisions (*microrhythms*), thus creating a cohesive rhythmic structure [18]. Moreover, realizing an intercultural musical impression requires the application of playing principles found in Sundanese *karawitan*. For instance, the *merean* technique involves plucking a single pitch on the *kacapi* to signal the *surupan* (tonality) to melodic instruments such as the *suling* (bamboo flute) or vocal lines [19]. Another example is the *tarompet* playing style, often performed *merdika* (freely, without metric constraints) and featuring distinctive ornaments known as *dongkari* [20]. Translating these techniques into Western instruments presents a unique challenge for musicians and holds the potential to produce novel musical interpretations. Based on the above considerations and ideas, a conceptual framework for the *Salen-Log Counterpoint* composition was constructed as the foundation for musical exploration. Naturally, various challenges and limitations arose during its development. However, as Slamet Abdul Sjukur noted in his reflections on contemporary music creation, limitations should not be seen as obstacles to artistic work; rather, they are spaces in which creativity can flourish [21].

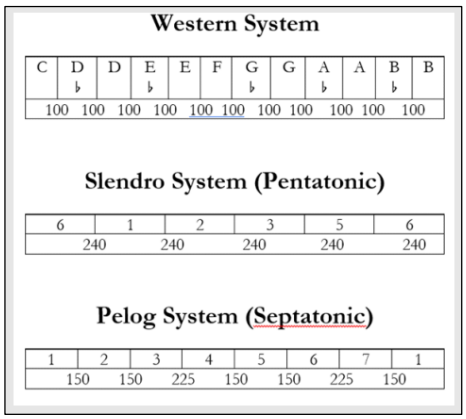

Fig. 3. Interval Structures of Western, Pelog, and Slendro Systems

2) Incubation

To realize the artistic and conceptual foundations of the composition, the composer utilized a professional music notation software, Steinberg Dorico Pro, Fig. 4. Dorico is the only music notation software designed from the ground up to serve the needs of composers, offering an interface with exceptional flexibility, instrument sounds based on expression maps integrated with high-quality Virtual Studio Technology Instruments (VSTi), more than 30 effect processors, a complete audio mixer, and tools that ensure music sounds as good as it looks [22]. Several of Dorico's features significantly supported the composer's creativity in developing *Salen-Log Counterpoint*.

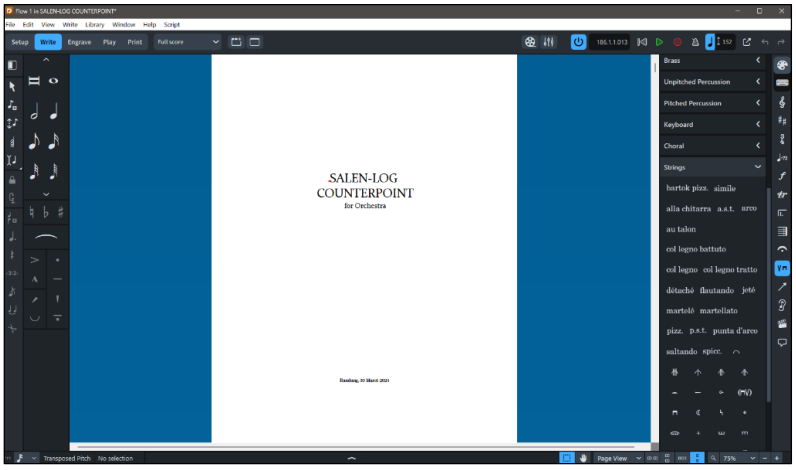

Fig. 4. Steinberg Dorico Pro 4 Main Interface

Dorico's flexible interface is especially advantageous for composers, as it allows for notation across diverse tuning systems. Based on the conceptual groundwork of *Salen-Log Counterpoint*, the composition integrates multiple tuning systems, including *salendro*, *pelog*, and Western tonality. Considering this, the composer chose to employ an atonal system—a method of pitch organization that permits the use of hybrid or mixed tuning systems within a single framework [23]. However, using an atonal system presents certain challenges, particularly in the notation process, which requires numerous accidentals (natural, sharp, and flat) to indicate pitch variations. For the composer, this complexity is not a hindrance; rather, it helps musicians interpret and perform pitches with greater fidelity to the intended artistic nuances. Once the core parameters for score writing were established, the composer began determining the instrumentation for the work. Initially, there was some uncertainty regarding the orchestration format, with considerations about how to create a sound that would be both compelling and innovative. The composer reflected on various orchestral playing techniques and imagined how they could be developed further.

Eventually, inspiration was drawn from the concept of extended techniques—new musical playing methods and notations generally defined as unconventional approaches that produce novel and often unpredictable sounds [24]. For the composer, applying extended techniques to orchestral instruments offered strong creative stimulation to realize the envisioned artistic expression. To facilitate this, the composer employed the Spitfire Symphonic Orchestra Series VSTi, which contains a wide sound library ranging from core to extended techniques. This VSTi was integrated into Dorico through the expression map feature, so that when notation was entered, the resulting audio simulation would automatically use high-quality samples from the VSTi library, Fig. 5. This enabled a much more dynamic and varied sonic exploration. As an initial step, the composer selected instrumentation based on individual techniques available within the Spitfire Symphonic Orchestra VSTi. The chosen instruments included: first violin, second violin, viola, violoncello, contrabass, flute, clarinet, bassoon, trumpet, and French horn.

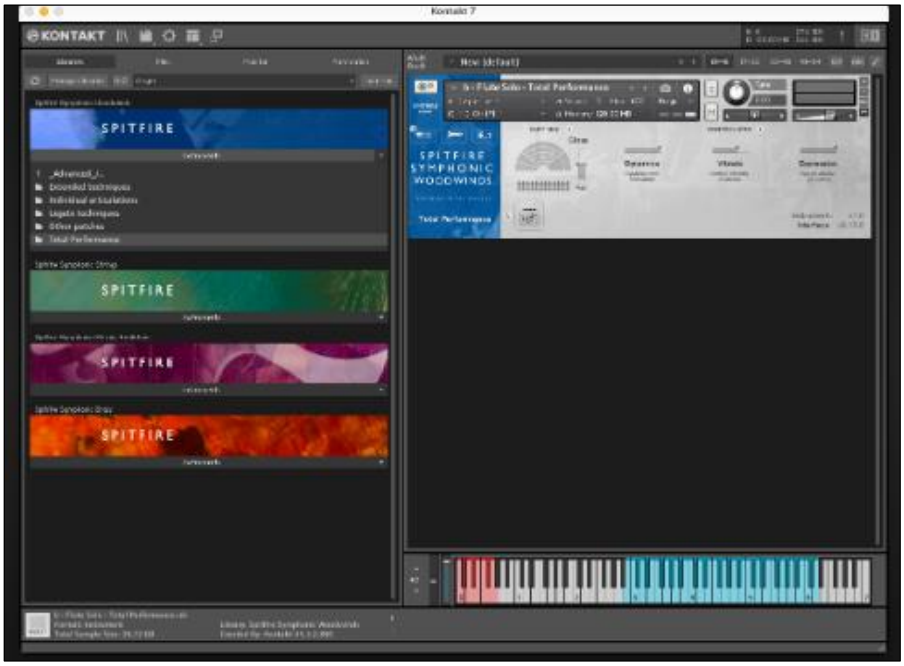

Fig. 5. VSTi Spitfire Symphonic Orchestra Series Bundle

The composer then realized that the sonic texture of the selected instrumentation could be enhanced by incorporating percussion instruments. During this phase, the accidental sound of a ticking wall clock and a metronome sparked an idea to emulate these sounds using a drumstick, as a symbolic representation of both. This led to a new question: what if drumsticks were applied to other percussion instruments? Would the composition require melodic percussion? To explore this, the composer opted to use the glockenspiel, played with drumsticks. This decision was based on the glockenspiel's pitched nature and its potential to produce a variety of timbres through alternative playing techniques. The use of drumsticks on a glockenspiel also yielded a timbral quality distinct from conventional techniques. Taking all these aspects into account—both the adoption of an atonal system and the orchestral instrumentation format—the composer proceeded to create a blank sketch within Dorico to continue the deeper phase of musical exploration.

3) Illumination

In the early phase of musical exploration, the composer envisioned and designed a melodic configuration to be played by the flute. This melody was structured using the *salendro* tuning system but rendered through a well-tempered instrument. At this stage, the composer imagined how the flute could produce a percussive sound character reminiscent of gamelan instruments. After exploring various techniques on the flute, the composer decided to use the short overblown articulation—a method of blowing the flute with high-pressure airflow to create a loud, percussive sound caused by air striking the instrument's soundhole. The flute's *starting point* is on the first beat of bar three, and the melody continues for eight bars. From this configuration, the composer developed a foundational motif to be expanded using a free counterpoint approach, Fig. 6. The composer then imagined another percussive sound played by a different instrument. Simultaneously with the flute's entrance, the first violin was assigned a melodic configuration with the same rhythm, but in the *pelog* tuning system, also adapted to a well-tempered context. String instruments like the violin inherently possess a greater potential for producing percussive effects due to their bowing-based playability. Upon exploring various playing techniques, the composer chose to apply col legno battuto—a technique in which the strings are struck with the back of the bow. As a result, two distinct melodic configurations emerged from two different instrumental families and tuning systems. To enhance the sonic texture, the composer applied forte-piano dynamics, characterized by a sudden shift from loud (forte) to soft (piano), also known as subito dynamics.

This configuration was then applied to other melodic instruments: second violin, viola, and violoncello among the strings; and oboe and trumpet among the winds—each entering at

different starting points and arranged using interlocking principles. Additionally, a constant rhythmic figure using drumsticks was notated in 1/8-note beats and later joined by muted glockenspiel strikes—executed by striking and then quickly damping the bar with the other hand, akin to the *tengkep* technique in gamelan playing. The glockenspiel playing technique was directly inspired by traditional gamelan practices. The resulting sonic blend—between winds, strings, and percussion—formed a contrasting yet harmonious soundscape. The composer then envisioned adding a low-frequency sound layer to enrich the existing sonic configuration. Among orchestral instruments, those capable of producing low frequencies include the bassoon, French horn, trombone, and contrabass. These instruments were tasked with long-tone passages using molto crescendo–decrescendo dynamics—starting softly, growing louder, then fading again. The entrance of this low-frequency layer was cued by a glockenspiel tone that "cut through" the preceding *salendro* and *pelog* melodic density.

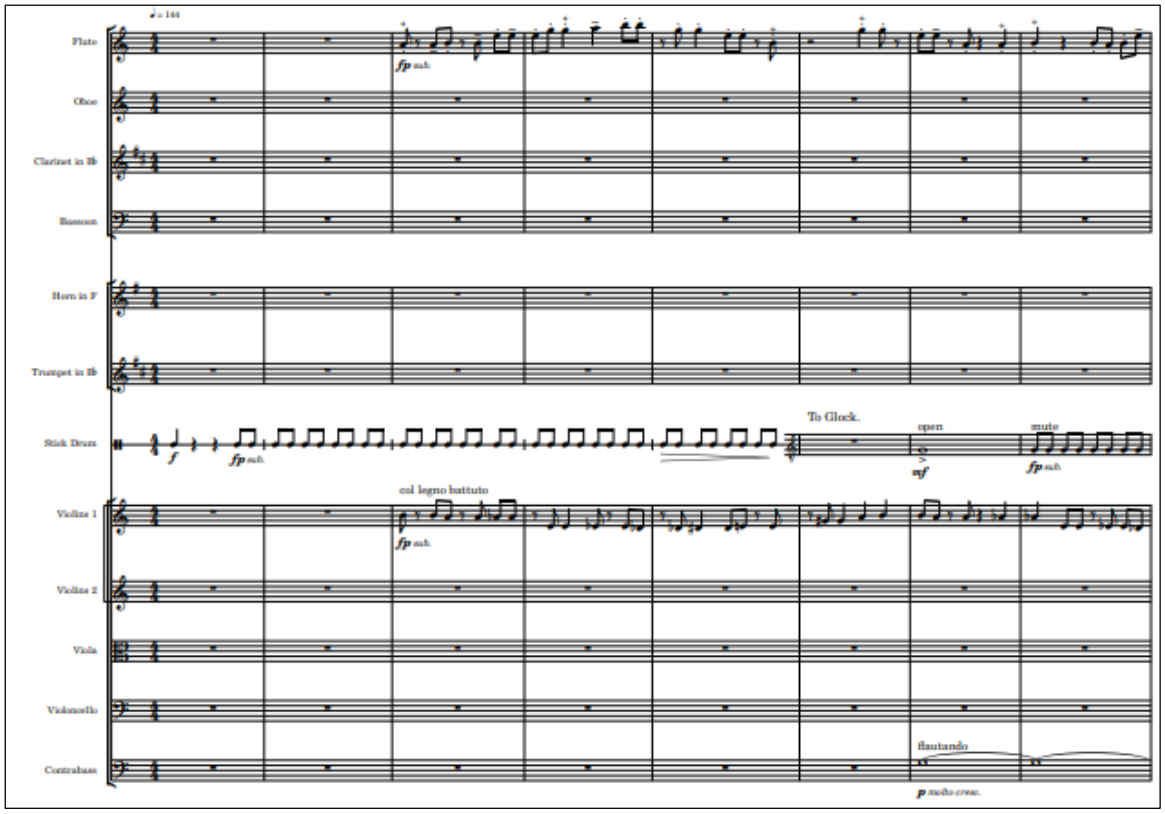

Fig. 6. Beginning part of Salen-Log Counterpoint

Following the Fig 7, the composer conceived of a closing section for the introduction, featuring long tones in Bb, A, E, and D# across various instruments. These tones were chosen to form a cluster tone. According to *The Jazz Piano Site*, cluster tones are formed using secondal chords, built from second-interval stacking. Due to their highly dissonant and jarring effect, cluster tones can grab the listener's attention and serve as a bridge between pitch and noise when played percussively [25]. The next section consists of a transition passage played by the string section using pizzicato, forming a pattern centered around the pitch E, distributed across instrument ranges. This idea draws from the merean technique in *karawitan*, which serves as a tonal guide for singers (*juru kawih*) to identify the scale or tonal center (*surupan*) [19]. In the context of *Salen-Log Counterpoint*, this transition acts as both a cooldown moment and a tonal anchor before entering the next contrapuntal section.

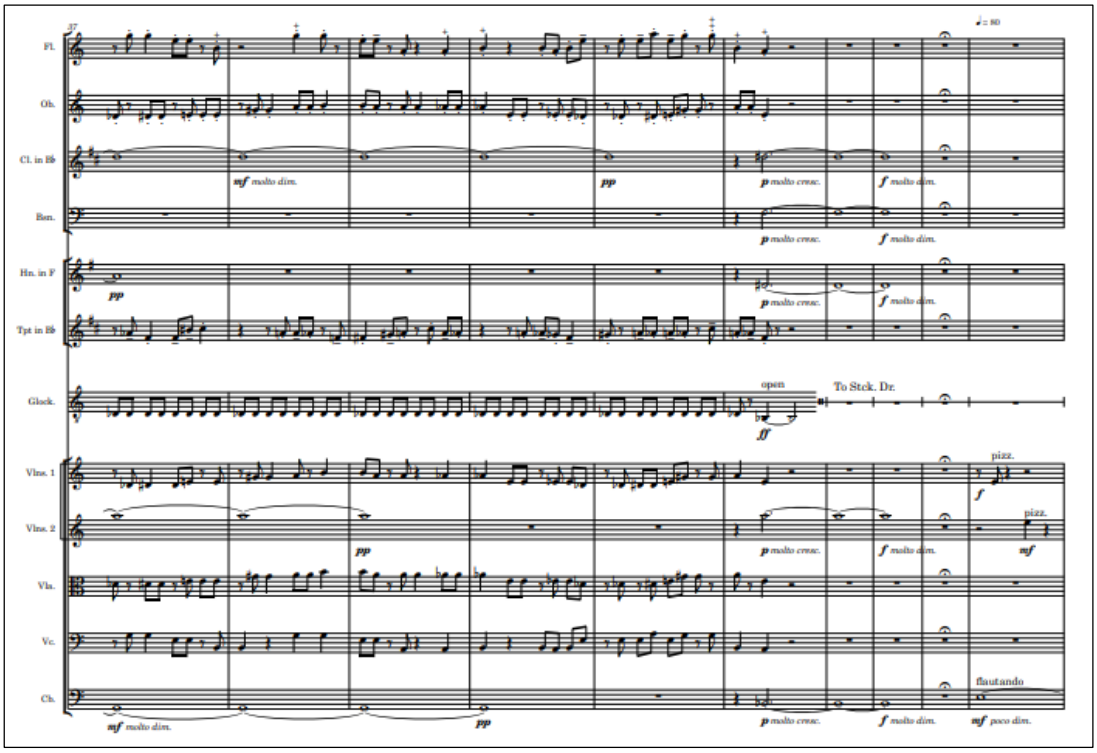

Fig. 7. End of Beginning part of *Salen-Log Counterpoint*

In the next part, Fig. 8, the composer introduced a plucked rhythmic melody to build early tension. This was played by the violoncello using pizzicato and a combination of time signatures: 3/4, 5/8, and 4/4—to create an additive rhythm effect. According to Mack, additive rhythm involves organizing rhythm in a non-metric fashion, where beats are still felt but grouped into irregular, composed units [26]. The melody was passed antiphonally, beginning with the woodwinds section, then echoed by the strings. The glockenspiel contributed fragmented melodic passages that helped to break the density of the overall texture.

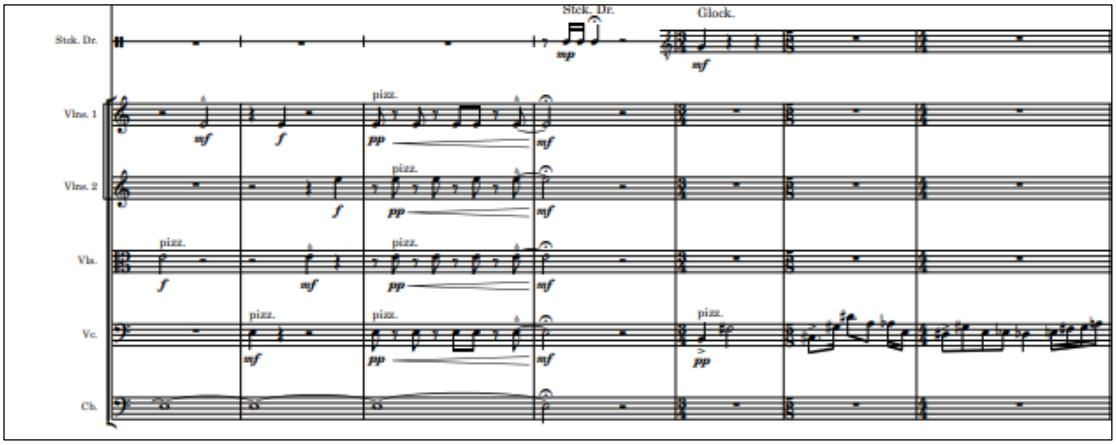

Fig. 8. Transition Part of *Salen-Log Counterpoint*

Fig. 9 illustrates the use of a distinct melodic ornament from *karawitan Sunda*, played alternately between melodic wind instruments (flute, oboe, clarinet) and strings (violin I, violin II, viola). The composer observed that this exchange gave rise to emergent harmonies, indirectly creating a polyphonic texture—a structure defined by interwoven melodies and counterpoint [27]. The following section featured the contrabass performing a *mincit*-style bassline—a traditional accompaniment pattern used in Sundanese dance accompaniment [19]. This bassline was played pizzicato using Bartók pizzicato technique on the first beat of each measure. The violoncello layered this line by filling rhythmic gaps, adding weight to the texture.

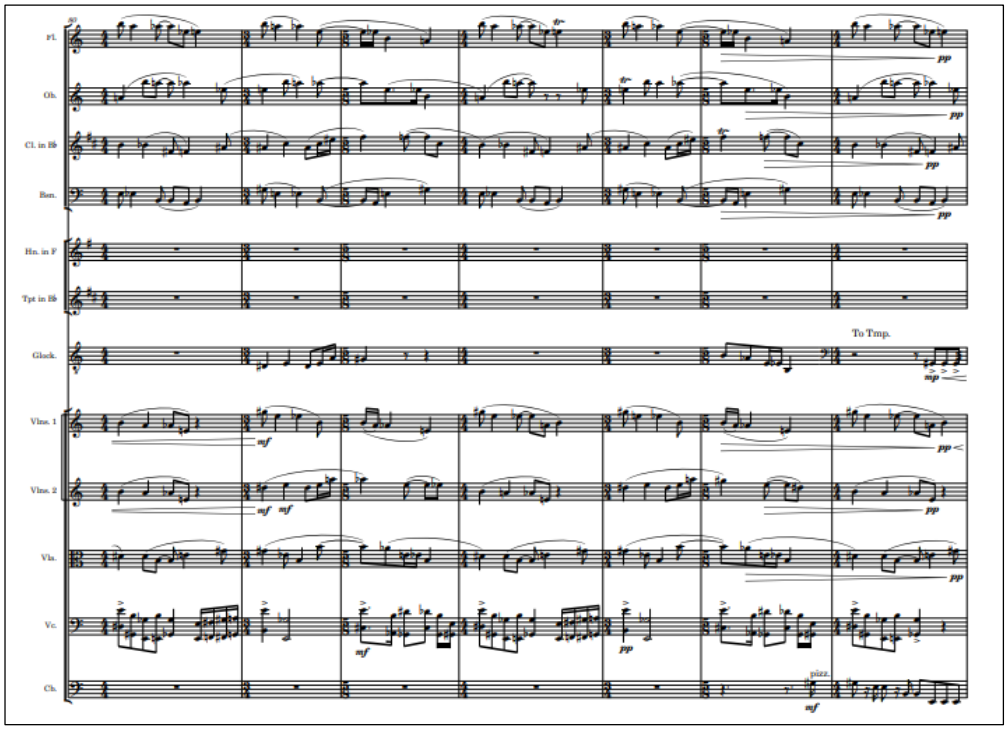

Fig. 9. Second Part of Salen-Log Counterpoint

Through the *mincit* adaptation, the composer envisioned an ambiguous harmonic background, inspired by Steve Reich's works, where chords emerge and fade using molto crescendo-decrescendo. This idea was realized by violin I, violin II, and viola, playing 1/16 staccato notes using sul tasto bowing (near the neck) to create a soft delay effect, Fig. 10. This was combined with antiphonal melodies from the flute, oboe, clarinet, and bassoon based on the *salendro* tuning. To increase tension, the brass section and glockenspiel entered suddenly, reinforcing the strings' harmony and the woodwinds' melodic lines. Next was an adaptation of the Sundanese trumpet melodic ornamentation, played on a Western trumpet using the *salendro* scale. The difference in organology and playing technique made the ornaments sound sharper and more abrasive. However, the composer welcomed this as an interpretive challenge in approximating the Sundanese *tarompet* timbre.

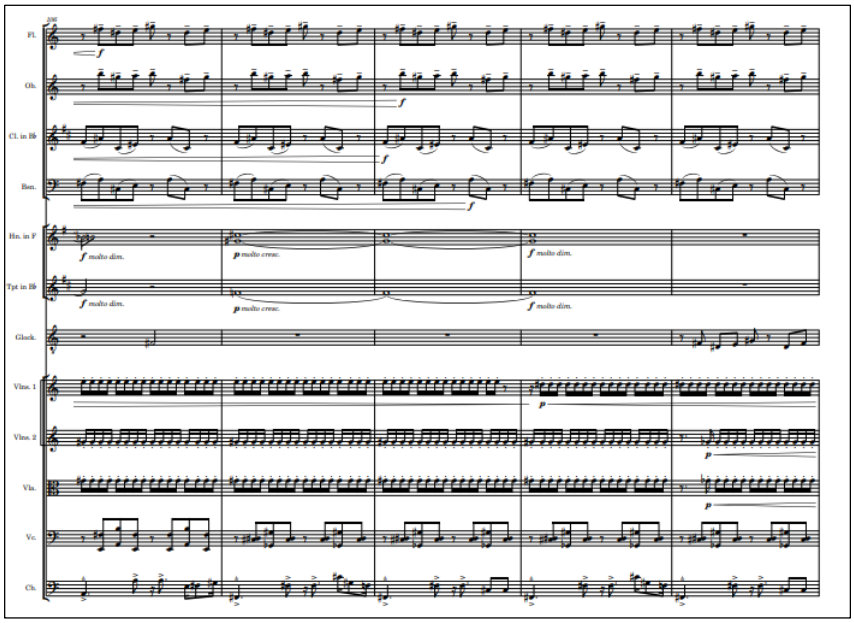

Fig. 10. Third Part of Salen-Log Counterpoint

Fig. 11 presents the trumpet melody in Western notation, including symbols such as appoggiatura, acciaccatura, fall, and legato. The melody was shaped by the composer's auditory experiences in appreciating *karawitan* involving the *tarompet Sunda*. This trumpet solo marked the final segment of the composition. In the coda, the composer developed initial materials with altered accents and shifting time signatures (additive meter). Accents were emphasized by the low section (contrabass with Bartók pizzicato, bassoon, horn, and timpani). Additionally, the composer applied a note-shifting technique resembling modulation (key changes) midway through the final section to increase tension and dramatic impact.

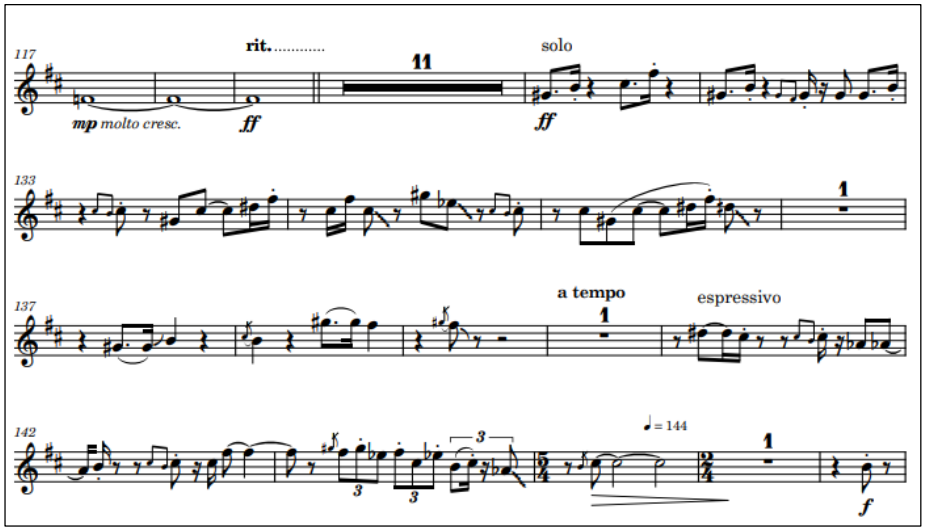

Fig. 11. Trumpet Solo Transcription of *Salen-Log Counterpoint*

Thus concluded the illumination phase of the composer's musical exploration in *Salen-Log Counterpoint*. All musical explorations described above were transcribed into full notation and simulated via Dorico software. These outputs—both full score and audio simulations—served as essential materials for musician rehearsals and formed the basis for the next stages of the composition's development, Fig. 12.

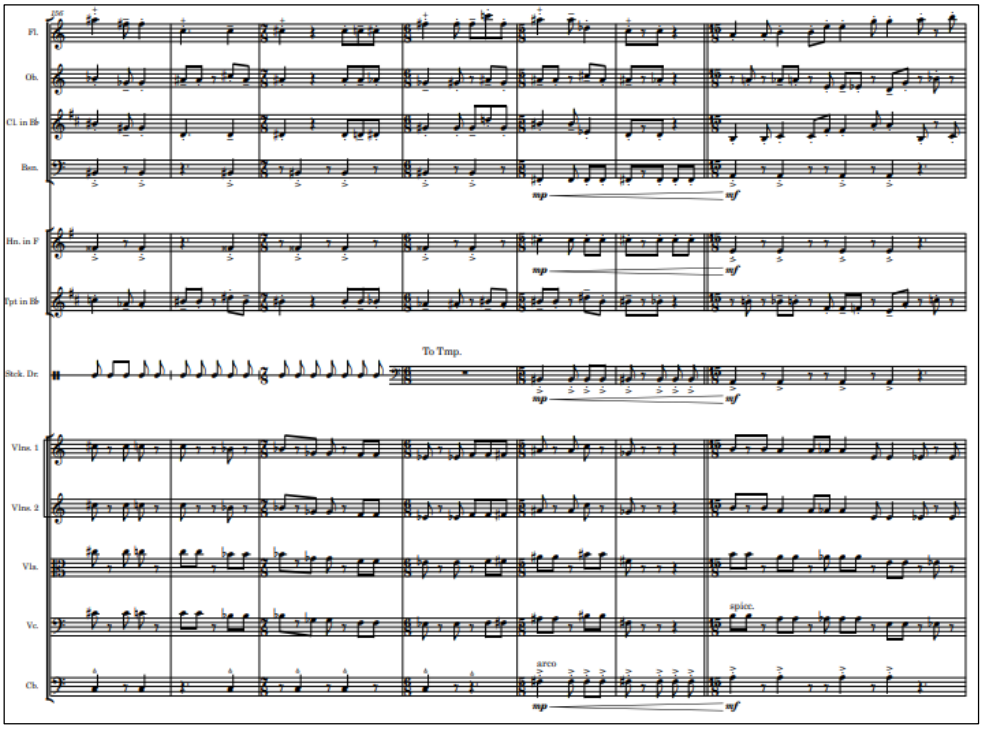

Fig. 12. Last Part of Salen-Log Counterpoint

4) Verification

At this stage, the composer undertook several key steps to gain new insights that would refine the development process of *Salen-Log Counterpoint*. These insights predominantly emerged during live rehearsal sessions with the musicians. The rehearsals lasted approximately three days and were conducted under the direct supervision and guidance of the artistic director, Dr. Michael Hall, who was responsible for curating the repertoire for the *The Scottish* symphony concert, Fig. 13. Dr. Michael Hall played a crucial role in helping the composer articulate the musical concepts to the conductor, Olivier Ochanine. It was a fortunate circumstance that Hall possessed a strong academic background in the aesthetics of *karawitan* (Indonesian traditional music). On several occasions, he was able to accurately reinterpret the idioms of *karawitan*—as explained by the composer—for the conductor, who, being a French national, was relatively unfamiliar with such musical idioms. This context significantly influenced the general musical interpretation, particularly in its orchestral application.

Fig. 13. Composer and Bandung Philharmonic Artistic Director, Dr. Michael Hall

Throughout the rehearsal process, multiple discussions took place among the composer, the conductor, and the musicians. A number of questions were raised by the conductor and players concerning the use of specific techniques and the sonic qualities desired by the composer. To address these concerns, the composer provided descriptive explanations to both the conductor and the principal players of each section. These explanations were further reinforced through playback of audio simulations prepared during the earlier exploration phase. This effort proved to be highly effective in clarifying the artistic context of the work for both the conductor and musicians. Nevertheless, several challenges remained, such as varying levels of technical ability among the musicians, sight-reading proficiency, and inconsistencies in the interpretation of notation conventions across different players. During subsequent rehearsal sessions, the composer visited each section and engaged in intensive communication with the principal players. These sectional discussions were conducted to gather feedback and to assess the perceived complexity of the techniques employed in the piece, Fig. 14. Following these discussions, most musicians expressed greater comfort in executing the techniques and reported an improved understanding of the notation after receiving additional explanations.

Fig. 14. Discussion between Composer and Instrument Principals

The composer also initiated further mediation with the conductor, with the aim of preserving the essence and musical intent of the work. Although the process posed interpretive challenges for the conductor, the detailed rehearsal and refinement process ultimately enabled all parties

to proceed with the rehearsals smoothly. In terms of the work's realization, *Salen-Log Counterpoint* was premiered live by the Bandung Philharmonic Orchestra as part of *The Scottish* symphony concert, held at the Arntz-Geise Learning Center, Parahyangan Catholic University. The composer was present at the performance as an observer and experienced firsthand the realization of his composition by a full orchestra, Fig. 15.

Fig. 15. Bandung Philharmonic Orchestra performs *Salen-Log Counterpoint*

The composer expressed overall satisfaction with the performance, noting that the musicians delivered the work with appropriate vision and interpretation. However, the composer also acknowledged a number of imperfections—including inaccurate notes, unstable pitch and tone quality, tempo inconsistencies, and several other human errors—which are entirely natural within the context of live performance.

3.2. Discussion

The compositional process of *Salen-Log Counterpoint*, grounded in a practice-based research (PBR) approach, reveals the complexities and creative negotiations involved in transposing Sundanese karawitan idioms into a Western orchestral framework. According to Nelson (2013), PBR not only situates the artist as a knowledge producer, but also foregrounds the artistic process as a valid site for epistemological inquiry. This dual role requires the composer to oscillate between embodied artistic intuition and critical reflection, especially when dealing with intercultural translation of musical idioms. One of the central challenges observed during the exploration and rehearsal phases concerns the microtonal characteristics of the pelog and slendro scales, which are fundamentally incompatible with Western well-tempered tuning systems. As Becker; and Wu have discussed, the tuning of gamelan instruments is inherently non-standardized, often varying from one ensemble to another, and shaped by culturally embedded aesthetic principles rather than mathematical equalization [28], [29]. Dorico and other commercial notation software, while powerful in conventional Western notation, are limited in supporting microtonal systems without extensive workarounds. In this project, the composer undertook a subjective auditory mapping by aligning slendro and pelog tones with approximate Western chromatic pitches. While this enabled the composition to be notated within Dorico, the result was a compromise in spectral accuracy. This aligns with Emmerson's argument that digital tools often require composers of intercultural or non-Western works to engage in "translation under constraint," where fidelity to original timbre or intonation may be sacrificed for notational legibility and performability [30].

This translation process also revealed a secondary issue related to notation complexity. Due to the lack of custom tuning systems in Dorico's default settings, the score became heavily marked with accidentals, making it cognitively demanding for orchestral performers. In line with Opstad theory, this can be seen as a breakdown in the "readability-functionality" balance of musical scripts—a score too complex to read fluently undermines its function as a practical medium for performance [31]. Furthermore, during rehearsals, the composer observed that performative interpretation of Sundanese ornamentations such as *dongkari*, *merean*, and *mincit*—when written in standard Western notation—posed challenges for musicians unfamiliar with the cultural context. Karawitan ornamentation is not merely decorative, but encodes expressive and relational functions that are often lost in Western score-based transmission [32], [33]. This discrepancy demanded dialogical exchanges between the

composer, conductor, and principal players—aligning with Borgdorff's notion of "dialogic knowledge production" in artistic research [12]. Additionally, the work encountered resistance from some musicians regarding additive meter structures. While composers like Reich and Messiaen have long employed additive rhythms for creative purposes, musicians accustomed to regular metrical phrasing found such time signatures cognitively taxing. This highlights a broader tension in cultural rhythm literacy, where musicians' metrical schemata, may not align with those implied by the score [34]. Consequently, the composer adapted the additive meters into standard 4/4 bars with notated accent patterns, facilitating greater performative accessibility without fully abandoning the intended rhythmic complexity.

An additional layer of complexity emerged in the extended techniques employed—such as *col legno battuto* or *sul ponticello with dolce*. While these notations reflect experimental aesthetics, their playability and risk (*e.g.,* potential damage to bows) required renegotiation. This aligns with Eisenmen, who emphasize that artistic constraints can trigger new modes of inventiveness—in this case, through substitution techniques that preserved the intended timbral contrast [35]. The rehearsal process underscored the significance of socio-musical negotiation. The act of composition did not end with the written score but extended into the rehearsal room, where interpretative choices were co-constructed. This echoes Davies concept of the "work concept" as fluid rather than fixed, particularly in intercultural and contemporary performance contexts [36]. The *Salen-Log Counterpoint* project demonstrates that while digital tools and Western notation systems can mediate complex intercultural ideas, they also introduce epistemic and performative frictions. Rather than obstacles, these frictions are reframed as sites of reflection and innovation, where artistic practice itself becomes a form of critical inquiry.

4. Conclusion

The practice-based research (PBR) methodology has proven effective in generating new approaches to the creation of intercultural music—going beyond literal transcription to embrace creative transformation. The scholarly contribution of this project lies in the development of adaptive techniques that integrate Sundanese *karawitan* tuning systems and ornamentation into Western orchestration practices, employing contrapuntal strategies, heterophonic textures, and contextually informed rhythmic structures. The primary challenges encountered in this project involved the limitations of notation software in rendering microtonality and expressive idioms inherent in *karawitan*, as well as time constraints during rehearsals that restricted deeper interpretive exploration. Additional obstacles arose in translating traditional musical idioms into Western notation systems and facilitating effective communication across culturally diverse musicians. Nevertheless, these challenges also served as valuable reflective points that enriched the concrete artistic methodology. Future recommendations include the development of digital tools capable of simulating *karawitan* techniques and the advancement of intercultural music pedagogy within formal educational institutions.

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