

DEVELOPMENT OF THE MELODICA ENSEMBLE LEARNING MODEL FOR STUDENTS OF SANG TIMUR CATHOLIC ELEMENTARY SCHOOL IN SEMARANG

Christanto Hadijaya¹, Ricky Nelson², Trianus Homklom³

¹Musik Gereja, Sekolah Tinggi Teologi Kristus Alfa Omega, Semarang, Indonesia

^{1*}christtofirrolio@gmail.com, ²nelsonsinaga1105@gmail.com,

³treyanus18@gmail.com

ABSTRACT

This study develops and evaluates a structured Melodica ensemble learning model for elementary school students in response to the limited availability of systematic and developmentally appropriate ensemble-based instruction in primary music education. Using a design-based research approach, the study included needs analysis, model design, expert validation, limited trials, and implementation evaluation with Grade 3–6 students at SDK Sang Timur Semarang. The model integrates five progressive stages (listening, imitating, reading symbols, performing with accompaniment, and reflection), supported by graded repertoire, ensemble arrangements, digital media, and color management as visual scaffolding. Functional harmonic accompaniment (I–IV–V) in C and G major was applied to reinforce tonal understanding. Results show an 85% improvement in notation reading, approximately 50% increased fingering accuracy in early stages, and significant gains in rhythmic precision, pitch accuracy, ensemble coordination, and learning motivation. The gradual removal of color support confirms its role as effective transitional scaffolding without dependency. This study offers a validated and implementable pedagogical framework for strengthening basic music literacy through ensemble-based learning in elementary education.

Keywords: Basic music literacy, design-based research, elementary music education, Melodica ensemble, visual scaffolding

ABSTRAK

Studi ini mengembangkan dan mengevaluasi model pembelajaran ansambel Pianika yang terstruktur untuk siswa sekolah dasar sebagai tanggapan terhadap terbatasnya ketersediaan pengajaran berbasis ansambel yang sistematis dan sesuai dengan perkembangan dalam pendidikan musik dasar. Dengan menggunakan pendekatan penelitian berbasis desain, penelitian ini mencakup analisis kebutuhan, perancangan model, validasi ahli, uji coba terbatas, dan evaluasi implementasi dengan siswa kelas 3-6 SDK Sang Timur Semarang. Model ini mengintegrasikan lima tahap progresif (mendengarkan, meniru, membaca

simbol, tampil dengan iringan, dan refleksi), didukung oleh repertoar bertingkat, aransemen ansambel, media digital, dan manajemen warna sebagai perancah visual. Iringan harmonik fungsional (I–IV–V) dalam C dan G mayor diterapkan untuk memperkuat pemahaman nada. Hasil menunjukkan peningkatan 85% dalam pembacaan notasi, sekitar 50% peningkatan akurasi penjarian pada tahap awal, dan peningkatan yang signifikan dalam presisi ritmik, akurasi nada, koordinasi ansambel, dan motivasi belajar. Penghapusan dukungan warna secara bertahap menegaskan perannya sebagai perancah transisi yang efektif tanpa ketergantungan. Studi ini menawarkan kerangka pedagogis yang divalidasi dan dapat diimplementasikan untuk memperkuat literasi musik dasar melalui pembelajaran berbasis ansambel dalam pendidikan dasar.

Kata Kunci: Ansambel pianika, literasi musik dasar, pendidikan musik sekolah dasar, penelitian berbasis desain, perancah visual

A. Introduction

Music education in elementary school has an important role in shaping children's musical intelligence and aesthetic sensitivity (Anggraeni & Kurniawati, 2024). Music not only serves as entertainment, but also trains concentration, fine motor skills, cooperative skills, and character development. One of the instruments that is easy for elementary school students to learn is the Melodica. This instrument is lightweight, simple, affordable, and is able to gradually introduce various musical elements from melody, rhythm, fingering, to breathing coordination. (Astuti, 2021)

The condition of elementary school students in Indonesia, there are still many who do not have an adequate understanding of music

theory and practice such as basic knowledge of music notation and basic techniques for playing it. This situation was also found in SDK Sang Timur Semarang, where extracurricular activities for music ensembles were unprecedented, so this activity was initiated by one of the sisters who saw the anxiety that the school had a legacy of musical instruments but was abandoned for a long time because there were no experts who could practice music. So that extracurricular musical activities, especially Melodica ensembles, have only been carried out during this study. Thus, this research is needed to be able to create a systematic and measurable training program so that students are not only able to play the Melodica in imitation, but also

understand musical concepts comprehensively.

The Community Service Program (PKM) is designed to fill the gap in music education in elementary schools through Melodica ensemble learning using a gradual approach, starting from basic note recognition to practicing two-voice ensemble songs. This activity is expected not only to improve students' technical skills, but also to provide a model of learning instrument music that can be applied in other elementary schools (Bella et al., 2021).

According to Campbell, music education at the elementary school level plays a very important role because it is the initial foundation for children's musical development while supporting their cognitive and emotional growth. Through musical activities, children gain sensorimotor experiences that stimulate brain skills, improve memory, and strengthen concentration in the learning process. Music also provides space for students to express their feelings creatively, thus helping to build positive characters such as confidence, discipline, and social sensitivity. Thus, music education not only hone musical skills, but also

contributes greatly to the overall development of children from an early age.(Campbell, 2020)

Both according to Choksy and the Orff-Schulwerk approach, the use of simple instruments such as the Melodica is seen as very effective in music education at the elementary school level because it is able to present a complete musical experience but is still easy to understand for students. Melodica allows students to gradually learn elements of rhythm, melody, and harmony without encountering the level of technical difficulty typically found on more complex wind or stroke instruments. Through this instrument, children can directly produce controlled sounds, practice basic rhythmic patterns, explore the order of the notes, and understand the relationships between notes through simple melodic and duet plays. Its simplicity makes the Melodica an ideal tool for developing musical foundations, while supporting the creative and participatory learning emphasized in Choksy's theory and the Orff-Schulwerk approach (Muliyah et al., 2020).

Ensembles teach coordination, listening between voices, rhythmic

precision, and cooperation. Two-voice ensemble practice is the development stage of single melody practice and can improve students' basic harmony understanding. Kemmis and McTaggart emphasized that action research is a research approach that is very relevant to the educational context because it provides an opportunity for teachers or researchers to be directly involved in the learning process (Kemmis et al., 2020). Through this approach, teachers not only observe classroom dynamics, but can also design and implement learning interventions in a reflective manner to answer the real needs of students. Each action taken is then systematically evaluated so that there can be continuous improvement in teaching strategies (Dillon, 2023). Thus, action research not only produces empirical data, but also creates an adaptive, collaborative, and contextual learning cycle, where teachers play an active role as agents of change in improving the quality of educational processes and outcomes (Cipta et al., 2024).

To strengthen the pedagogical framework of the Melodica ensemble learning model, this study adopts modern music education theories that

are relevant to the context of the 21st century. The main focus is on collaboration, intrinsic motivation, active learning, and the use of technology in the ensemble learning process in elementary schools.

B. Research Methods

This study uses an Action Research design that is applied systematically to improve the ability of elementary school students' Melodica ensembles through four main stages, namely planning, implementation, observation, and reflection/evaluation. (Kemmis et al., 2020)

In the planning stage, the researcher prepares a learning plan that contains objectives, competency indicators, materials, training steps, and evaluation tools that are tailored to the characteristics of students in grades 3 to 6. The basic materials planned include note recognition, block notation, beat values, scale recognition, simple song practice, to two-voice ensemble playing.

Furthermore, at the implementation stage, the entire learning plan was implemented through a series of face-to-face meetings in the Sang Timur SDK Hall.

This implementation process includes demonstrations of basic techniques, gradual exercises, the use of digital learning media such as Canva materials, MIDI/MP3 accompaniment, and supporting strategies such as giving note stickers on the Melodica to make it easier for students to recognize keys.

The observation stage is carried out at the same time as the implementation, where the researcher records the development of students towards technical aspects (fingering, intonation, rhythm), cognitive aspects (notation understanding), and affective aspects (discipline, consistency of practice). Observations also include a comparison of progress between grade levels, the level of material difficulty, and students' responses to teaching methods.(Handayani et al., 2022)

In the last stage, namely reflection and evaluation, the researcher analyzes all the data from the observation and test of Melodica playing, then identifies the successes and obstacles that arise. The results of the reflection are used to improve the learning strategy at the next meeting, ensuring that the training process is adaptive and progressive. Through

this series of four stages, Action Research allows researchers to provide structured, responsive, and effective Melodica ensemble training for elementary school students.(Henry, 2023).

C. Result and Discussion

4.1 Learning Approach for Students in Grades 3–6 SDK Sang Timur Semarang

The results of field observation showed that there was a significant difference in learning characteristics between students in grades 3–4 and grades 5–6. Students in grades 3–4 tend to be in the concrete operational phase, so learning is effective when the material is presented in the form of visuals, simple symbols, colors, and hands-on practical activities. In this group, abstraction of block notation without additional visual aid is likely to cause confusion.

On the other hand, students in grades 5–6 began to show more systematic thinking skills and were able to understand interval patterns and relationships between notes in a more structured way. They not only memorize the position of the notes, but begin to understand the patterns

up and down the scales and the relationship of distance between the notes.

The learning approach in this study is designed based on these characteristics through four main orientations:

a. Learning by Doing (Live Practice)

The *learning by doing* approach places practical activities as the core of the learning process. Students not only receive theoretical explanations of the note names or notation positions on the Staff lines, but directly practice the notes introduced through Melodica playing. This strategy allows for simultaneous integration of visual, auditory, and motor aspects (Devaney et al., 2022). Thus, students are faster to internalize the relationship between the notation symbols and the resulting sounds. This approach also reduces the tendency to memorize alone, because understanding is built through concrete experiences.

b. Visualization of Music Symbols through Color

The visualization of musical symbols is carried out through the application of a consistent color system to the notation of blocks and Melodica keys. Each note has a specific color that is the same between

the visual medium and the instrument, so students can build visual-auditory associations more quickly. This strategy is especially effective for low-grade students who are still at the stage of concrete thinking (Johnson & Johnson, 2022). Color serves as a bridge between abstract symbols and sound experiences, so that the process of reading notation becomes simpler and does not create excessive cognitive load in the early stages of learning.

c. Gradual and Structured Repetitions

The learning material is repeated systematically through repetitions that are designed to be gradual and progressive. The same tone pattern is brought back with simple variations, such as changes in rhythm, dynamics, or tempo. This approach allows for the strengthening of musical memory without creating saturation (Khadijah et al., 2025). Structured repetition helps students build technical stability while understanding musical patterns more deeply. Thus, repetition is not mechanical, but becomes a means of strengthening conceptual understanding and practical skills.

d. Contextual Musical Approach through Minus One Accompaniment

A contextual musical approach is applied through the use of *minus one* accompaniment, in which students play the melody in a context of intact harmony. This strategy avoids isolated and mechanical exercises. With accompaniment, students feel the melodic function in simple tonal structures, such as progression I–IV–V. In addition to improving tempo stability and rhythmic coordination, this approach also strengthens students' motivation and confidence. Learning becomes more meaningful because students experience music as a living unit, not just a series of stand-alone notes. (Marijo et al., 2022)

Quantitatively, after four meetings:

- 85% of students are able to read simple block notation (do–sol range) with minimal error rate.
- 90% of students are able to play the C and G major scales in sequence with the help of color visuals.
- There was a decrease in notation reading errors by $\pm 35\text{--}40\%$ between the first and fourth meetings.

These data show that an approach tailored to the stage of cognitive development provides

significant results in a relatively short time.

4.2 Introduction to Block Notation (C and G Major Scales) in SDK Sang Timur Semarang

The implementation of block notation learning in this study was carried out on students in grades 3–6 at SDK Sang Timur Semarang with a gradual and systematic approach. The material starts from the introduction of the basic elements of block notation, including Staff lines, spaces, G keys (*treble clef*), and the arrangement of notes C–D–E–F–G–A–B–C in the C major scale. The initial stage is focused on the simultaneous formation of visual and auditory understanding, so that students not only recognize notation symbols, but also be able to relate them directly to concrete sounds on a Melodica instrument.



Figure 1. Introduction to Notation
Material for Students of SDK Sang
Timur Semarang
(Source: SDK Sang Timur Teaching
Team, 2025)

Stage I: C Major Scale

The C major scale was chosen as the starting material because it theoretically does not have a crescendo (#) or mole (b), so the visual structure is simpler. This simplicity pedagogically functions to reduce the cognitive burden of students in the early stages of music literacy. The focus of learning at this stage includes: (1) recognizing the position of the notes C–D–E–F–G–A–B–C on the lines and spaces of the staff, (2) connecting the notation symbols with the appropriate Melodica keys, and (3) understanding the interval patterns of 1–1–1/2–1–1–1–1/2 through the practice of ascending and descending scales.



Figure 2. Application of the C Major
Scale in the Song of the Holy Night
(Source: SDK Sang Timur Semarang
Teaching Team, 2025)

The learning results showed that the majority of students were able to understand the structure of the C major scale in two meetings. The errors that arise are generally related to the accuracy of reading the position of the lines and spacing, not to the order of the notes. These findings suggest that the main obstacle lies in the visual-spatial aspect, while understanding interval patterns is relatively faster to be mastered through hands-on practice.

Stage II: G Major Scale

After students conceptually understand the major interval pattern, learning continues to the G major scale which has one cross sign, namely F#. At this stage, the main challenge arises in the understanding that the note F changes to F# as per the key sign. Some students still play the natural F because of the influence of motor habits from learning the C major scale.

Through visual reinforcement in the form of a special color system on

the F# note in the notation and in the Melodica keys, as well as repetitive exercises contextualized in simple songs, there was a 40% reduction in playing errors at the third meeting. Students begin to understand that the cross mark applies consistently in one composition as long as it is in that key sign.

These results confirm that the transition from an unaltered scale to an altered scale must be built through an understanding of interval patterns and key sign systems, not just memorization of symbols. The gradual approach applied shows its effectiveness in building basic music literacy that is conceptual as well as applicative.

4.3 Introduction of Melodica Musical Instruments with *Color Management* as Visual Scaffolding

The application of *color management* in Melodica learning is a pedagogical innovation designed to answer the problem of early cognitive load in music literacy. Each Melodica key is color-coded that is consistent with the color of the notation on the learning medium. This consistency establishes a direct relationship between visual symbols (notation),

motor responses (fingering), and auditory perception (tone sounds). Thus, students are no longer dealing with abstract symbols separately, but with an integrated system of representation. (May, 2023)

Theoretically, this strategy is based on *cognitive load theory*, which states that the learning process will be more effective when extrinsic cognitive load is minimized. (Pratama, 2022) In the early stages of reading block notation, elementary school students face a double cognitive burden: understanding the position of symbols in staves while also finding the appropriate key position. The color system functions to reduce the extrinsic load by providing visual cues that speed up the symbol-instrument matching process. With a more controlled cognitive load, working memory capacity can be diverted to understand musical patterns, rather than just looking for pitch positions (Suharto & Purnomo, 2021).



Figure 3. SDK Sang Timur Semarang Students Introduce Melodica Musical Instruments with Color Management as Visual Scaffolding
(Source: SDK Sang Timur Teaching Team, 2025)

Pedagogically, the application of *color management* has three main functions. First, it reduces the initial complexity of notation symbol reading. Second, it accelerates visual differentiation between tones so that students do not hesitate in determining the position of the keys. Third, improve eye-hand coordination through consistent color associations. This strategy is not intended to replace standard notation, but rather as a transitional bridge to independent notation literacy.



Figure 4. Application of color management in the Notation of the Holy Night Song
(Source: SDK Sang Timur Semarang Teaching Team, 2025)

The results of the implementation showed different impacts based on grade level. In students in grades 3–4, the fingering accuracy increased by $\pm 50\%$ compared to the colorless method. Students in this group showed a significant decrease in key search errors as well as an increase in confidence when playing simple scales and melodies. These findings indicate that at the stage of concrete operational development, explicit visual support is highly effective in building symbolic associations.

In students in grades 5–6, the color system functions as an *initial reinforcement* as well as a form of *scaffolding*. This group demonstrated

the ability to transition relatively quickly from color-based systems to pure notation reading. This strengthens the principle of *scaffolding* in learning theory, namely that assistance is provided temporarily and gradually reduced as students' competence increases (Riyadi & Budiman, 2023).

After three meetings, the intensity of color use began to be systematically reduced. Evaluations show that most students are still able to read and play notation without full color assistance. This fact confirms that *color management* does not create dependence, but rather accelerates the initial phase of internalization of musical symbols.

Thus, the findings of this study show that color-based visual strategies are effective as pedagogical interventions at the stage of basic music literacy, especially in the context of Melodica learning in elementary schools. This approach not only improves technical accuracy, but also speeds up the transition to a more abstract and independent understanding of notation.

4.4 The Use of Minus One Accompaniment and Contextual Learning

The use of minus one *accompaniment* in music learning at SDK Sang Timur Semarang aims to create a contextual and integrative musical experience. Students not only play simple scales and songs separately, but play them over basic harmony progressions I–IV–V in C and G major scales. With this approach, the musical activity is placed in a whole tonal structure, so that students understand that the melody functions within the framework of harmony. Pedagogically, there were several significant impacts identified during implementation. (Marijo et al., 2022).



Figure 5. The Use of Minus One Accompaniment in Front of SDK Students of Sang Timur Semarang (Source: SDK Sang Timur Semarang Teaching Team, 2025)

First, *increased motivation to learn*. The presence of accompaniment creates a more lively and dynamic musical atmosphere. Students show higher enthusiasm because they feel a performative experience, as if they are performing in a performance. This condition has a direct impact on increasing students' active participation and emotional involvement in the learning process.

Second, *increased tempo stability*. The accompaniment serves as a rhythmic support that helps students maintain the consistency of the beat. In the early stages, some students experience tempo fluctuations due to focusing on reading notation and looking for key positions. With stable accompaniment, rhythmic control becomes more directed and tempo errors are significantly reduced.

Third, *increasing self-confidence*. Playing with accompaniment reduces anxiety because students don't feel like playing music individually without support. This collective musical environment creates a sense of psychological security that encourages students to perform more confident and expressive.

Fourth, *the development of understanding tonal functions*. Through hands-on experience of playing a melody over a progression of I–IV–V, students begin to feel the change in the character of the sound as the chords move. Although not entirely theoretically explainable, the students' musical responses indicate an early awareness of the relationship between melody and harmony.(Maulida et al., 2025) This indicates that learning does not stop at the technical ability to read notation, but develops towards a more structural musical understanding.

Overall, the use of *minus one* accompaniment in SDK Sang Timur Semarang expands the learning orientation from just technical skills to a more complete and meaningful musical experience. This approach shows that basic music literacy is more effective when placed in a context of lively and applicable harmony.

4.5 Simple Learning Methods in a Theoretical Framework

The learning method in this study is designed in five progressive stages: (1) *listening*, (2) *imitating*, (3) reading symbols, (4) playing with

accompaniment, and (5) simple reflection. This structure was developed based on the integration of Jean Piaget's theory of cognitive development, Albert Bandura's theory of social learning, David Kolb's experiential learning, and John Sweller's cognitive load theory (Devaney et al., 2022). Thus, this seemingly simple model has a strong and tested conceptual foundation in the study of education.



Figure 6. The learning process of the Melodica ensemble at SDK Sang Timur Semarang
(Source: SDK Sang Timur Teaching Team, 2025)

The first stage, *listening*, is in line with Piaget's theory of cognitive development, which states that elementary school-age students are at a concrete operational stage. In this phase, sensorimotor and perceptual experiences become the basis for the

formation of cognitive schemas. Therefore, learning begins with the experience of real sounds before the introduction of abstract symbols. This strategy also lowers the initial cognitive load as described in *cognitive load theory*, as students are not directly exposed to the complexity of notation.

The second stage, *imitating*, is directly correlated with Bandura's social learning theory which emphasizes the importance of observation and modeling in behavior formation. In the context of music learning, imitation is not just mechanical reproduction, but the process of internalizing sound and movement patterns. This activity strengthens procedural memory while gradually building motor auditory coordination.

The third stage, *reading symbols*, is placed after the student has had auditory and motor experience. This sequence is in line with the principle of symbolic representation in constructivism, where symbols are understood as representations of experiences that have been internalized. In Sweller's perspective, this approach is effective because it reduces the extrinsic

cognitive load of students no longer processing symbols separately from sound references.

The fourth stage, *playing together in accompaniment*, reflects Kolb's experiential learning cycle consisting of concrete experience, reflection, conceptualization, and active experimentation (Nelson et al., 2025). Playing in a harmonic context allows students to experience musical structure firsthand. Learning doesn't stop at decoding notation, but develops into a whole, contextual musical experience.

The fifth stage, *simple reflection*, reinforces the metacognitive dimension in learning. Reflection helps students to be aware of the process they are experiencing, recognize mistakes, and understand their development. Although it is done in a simple age-appropriate form, this stage affirms the importance of learning awareness in a constructivist perspective. (Yusnidar, 2022).



Figure 7. Melodica Ensemble
Performance of SDK Sang Timur
Semarang
(Source: SDK Sang Timur Teaching
Team, 2025)

The results of observations at SDK Sang Timur Semarang show that this five-stage structure helps students maintain concentration and show consistent progress. Clear, repetitive steps create procedural stability, which Sweller says plays an important role in optimizing working memory. Thus, the simplicity of the method is not an academic reduction, but a structured, theoretical, and empirical pedagogical strategy.

Conceptually, this model suggests that effective basic music learning should move from concrete experience to symbolic representation and reflection, not the other way around. The integration of the theories of Piaget, Bandura, Kolb, and Sweller strengthens the position of this research as a contribution to a

relevant and applicable pedagogical model for primary school music education.

D. Conclusion

Action research carried out at SDK Sang Timur Semarang shows that Melodica ensemble learning that is designed in a gradual, contextual, and theory-based manner is able to significantly improve the basic music literacy of elementary school students. The program not only reactivates previously unmanaged music facilities, but also presents a systematic, measurable, and adaptive learning model to the cognitive development characteristics of students in grades 3–6.

The findings of the study show that the *learning by doing approach*, visualization of symbols through *color management*, gradual repetition, and the integrated use of *minus one* accompaniment are able to improve the ability to read block notation, fingering accuracy, tempo stability, and understanding tonal functions. Quantitatively, the ability to read notation reached 85%, the ability to play the C and G major scales reached 90%, and there was a decrease in playing errors of up to $\pm 40\%$ in four

meetings. These data show that simple yet structured pedagogical interventions can produce significant learning impacts in a relatively short period of time.

Theoretically, the effectiveness of this model is strengthened by the integration of Piaget's theory of cognitive development, Bandura's theory of social learning, Kolb's experiential learning, and Sweller's *cognitive load theory*. The stages of learning that move from concrete auditory experiences to symbolization and reflection have been proven to be in harmony with constructivistic principles and cognitive load optimization. The application of *color management* as a form of visual *scaffolding* accelerates the initial phase of symbol internalization without creating permanent dependence, while the use of *minus one* accompaniment expands the learning orientation from technical skills to a whole, collaborative musical experience.

In addition, this model supports *collaborative musicianship* theory and sociocultural approaches in ensemble learning, where musical interaction encourages the development of students' empathy, discipline,

responsibility, and confidence. Thus, learning a Melodica ensemble not only improves musical competence, but also contributes to the development of character and social skills.

Conceptually, this study contributes in the form of a progressive stage-based Melodica ensemble learning model that is applicable to elementary schools with limited resources. This model shows that theoretical complexity is not a major prerequisite for the success of basic music education; What is more important is a pedagogical design that is systematic, adaptive, and contextual.

Thus, this study recommends that instrument music learning in elementary schools needs to be designed based on concrete experiences, transitional visual support, collaborative practice, and structured reflection. The model developed at SDK Sang Timur Semarang has the potential to be replicated and further developed in the context of other elementary schools as an effective and sustainable strategy to strengthen basic music literacy.

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