

Hand Sign-Based Instructional Model for Melodic Perception: Enhancing Elementary Teacher's Pedagogy

Irma Febryani, Gandung Joko Srimoko, Selamat Triadil Saragih, Dian Herdiati, Saryanto

Universitas Negeri Jakarta, Indonesia

Abstract:

Enhancing teacher's teaching skills at the elementary level needs creative methodologies, especially for the melodica instrument, which is taught conventionally to the students. Kodály's hand sign system presents a comprehensive approach combining visual, physical, and auditory learning components, but the implementation of this method in Indonesia is limited. This research creates an instructional framework utilizing manual signs to enhance students' aural recognition of melodies while assessing the effectiveness of the method in developing teachers' teaching capabilities. A problem identified among elementary school teachers teaching music as a subject is their low ability to creatively teach melodic concepts through the melodica. This qualitative study employed educational design research with three phases, analysis through focus group discussions (FGDs), development of a prototype model based on Kodály's theory, and expert validation testing and limited testing in three classes. Data was collected through participant observation, in-depth interviews, and analysis of lesson plan documents. This method is effective as an innovative pedagogical framework that optimizes hand-signing for melodica instruction, with a dual impact on teacher professionalism and students' musical literacy. As a recommendation, this model integration can be developed as a teaching material in the Indonesian curriculum.

Keywords: music pedagogy, hand sign, melodic perception, elementary music education, teacher competence

Corresponding Author:
irma.febryani@unj.ac.id

Author Biodata:
Universitas Negeri Jakarta

How to cite this article in APA style:

Febriyani, I., Srimoko, G. K., Saragih, S. T., Herdiati, D., & Saryanto (2025, August). Hand Sign-Based Instructional Model for Melodic Perception: Enhancing Elementary Teacher's Pedagogy. *Proceeding of the 3rd International Conference on Music And Culture (ICOMAC) 2025*. (Vol. I, No. I, pp. 65-71).

INTRODUCTION

Music education in elementary school plays a fundamental role in children's cognitive, affective, and psychomotor development (Biasutti et al., 2015). Through musical activities in music learning, students will sharpen their artistic sensitivity and also develop critical thinking skills, discipline, and cooperation.

The pianika, also known as the melodica, is often the instrument of choice in music curricula in many elementary schools, including in Indonesia, because it is considered practical, easy to carry, affordable, and relatively easy to learn the basics. Students who are mastering this instrument are expected to use it as an entry point for students to understand music literacy more broadly.

However, behind the expectations of the curriculum, a significant challenge has emerged: the gap between the curriculum's demands and the pedagogical competencies of classroom teachers at the elementary school level. The majority of elementary school teachers in Indonesia are not graduates of formal music education, so music instruction, especially for the pianika, often relies on conventional methods that are drill- and memorization-oriented (Barrett & Veblen, 2018).

Melodic perception is a competency that is quietly difficult to teach to the students. Students were struggling to visualize pitch, intervals, and melodic phrases through verbal and conventional instructions. Furthermore, teachers struggle to translate these abstract concepts into creative, interactive, and easily understood learning activities (Forrester, 2018). This situation is caused by the limited availability of innovative learning models and resources that can guide elementary teachers in teaching these musical concepts.

International studies have proven the effectiveness of the Kodály Hand Sign system as a pedagogical tool for concretising abstract musical concepts, particularly solfège and melodic perception (Dalby, 2019). Hand signs provide visual and kinaesthetic representations for each pitch level, thus engaging multiple senses which is auditory, visual, and kinaesthetic in students' learning process.

However, implementation and research on adapting this method to the context of pianika learning in Indonesia are still very limited. Furthermore, most research only focuses on student outcomes, while its impact on the development of teachers' pedagogical competencies as the spearhead of learning remains underexplored.

This research is grounded in multisensory learning theory and Kodály's philosophy, which emphasises that musical experience should come before symbol recognition (audiation). Hand signs serve as scaffolding, guiding students from concrete musical experiences (movement and sound) to symbolic understanding (notation) (Barrett & Veblen, 2018). In this context, the developed model is not only designed for students but also serves as a structured framework for teachers.

This model is expected to increase teachers' confidence and competence in planning, implementing, and evaluating more creative and effective pianika lessons. Based on this description, the purpose of this research is to develop and test the effectiveness of an innovative learning model based on Kodály's hand signs, aimed at improving students' melodic perception and elementary school teachers' pedagogical competence in teaching pianika.

This research answers two main questions: (1) How does a hand sign-based learning model affect the melodic perception of elementary school students at SDIT Nurul Islam? (2) What aspects of teachers' pedagogical competence have increased after applying this model?

The findings of this study are expected to provide a theoretical contribution to the development of music pedagogy and to practically improve the quality of basic music education in Indonesia.

METHODS

This research adopts a qualitative paradigm by applying the Educational Design Research

(EDR) method. EDR was chosen because it not only focuses on developing a product (learning model) that is practically effective but also aims to produce pedagogical design principles that can be used as theoretical guidelines (Plomp & Nieveen, 2013). This research is implemented through three main interrelated phases: (1) Problem Analysis and Initial Exploration, (2) Prototype Design and Development, and (3) Iterative Evaluation and Reflection (van den Akker et al., 2006).

This study involved multiple participants to ensure the validity and reliability of the data. The first participant is teachers. There are three classroom teachers from SDIT Nurul Islam Bekasi who teach various subjects including music, they don't have any formal music education background, and were willing to participate fully in all phases of the study. Participants were selected purposely to obtain objective and relevant information. The second participants are the students, there are twenty-five students from each of the participating teachers' classes (a total of 75 students) participated in the limited testing phase.

The research procedure systematically followed three EDR phases:

Phase 1: Problem Analysis and Initial Exploration. This phase began with a Focus Group Discussion (FGD) with the three participating teachers. The FGD was facilitated by open-ended questions to explore their experiences, challenges, and needs in teaching pianica and the concept of melodic perception. Next, a document analysis of the Lesson Implementation Plan (RPP) and initial classroom observations were conducted to identify gaps between practice and expected curriculum outcomes.

Phase 2: Prototype Design and Development. Based on the findings of Phase 1, an initial model framework was designed based on the theoretical principles of the Kodály method (Dalby, 2019). The prototype included the following components: (a) learning objectives, (b) learning syntax (activity stages with hand sign integration), (c) learning environment, (d) teacher role, and (e) authentic assessment instruments. Teaching materials and supporting media (e.g., hand sign video tutorials, melodic pattern charts) were also developed.

Phase 3: Next, the revised prototype underwent limited testing in three participant classes. This testing cycle was iterative, with observations and reflections after each meeting used to refine the model in real time.

Data triangulation was conducted using the following techniques:

1. Focus Group Discussions (FGDs): Used in the initial phase to identify core issues. Data were recorded, transcribed, and analyzed to formulate design requirements.
2. Participant Observation: Conducted during FGDs, limited trials, and lesson implementation. Researchers used observation guidelines that focused on: (a) student responses and interactions with hand signs, (b) pedagogical strategies implemented by teachers, and (c) classroom dynamics. Detailed field notes were taken (Creswell & Poth, 2018).
3. In-depth Interviews: Semi-structured interviews were conducted with teachers before, during, and after the intervention to explore their perceptions, feelings, difficulties, and perceived changes in competency.
4. Document Analysis: Documents analyzed included teachers' lesson plans (before and after the intervention), student work, teacher reflection notes, and expert validation sheets.

RESULTS AND DISCUSSION

This research successfully developed an innovative learning model based on Kodály hand signs that is effective in improving students' melodic perception and teachers' pedagogical competence. Data analysis from focus group discussions (FGDs), observations, interviews, and documents revealed two major themes. First, a significant transformation in students' auditory cognitive processes in understanding melodies. Second, a marked improvement in three dimensions of teachers' pedagogical competence: planning, implementation, and assessment of pianica learning. These findings were consistent across the three classes used in the research.

Observational data and interviews with teachers indicate that systematic hand sign integration can improve the accuracy of students' auditory perception. Before the intervention, students had difficulty distinguishing adjacent pitch intervals such as sol to la. After the use of hand signs, they demonstrated improved ability to identify and correct errors in pitches they heard or played. One teacher stated, "Students become more interactive. They can immediately catch if a friend plays a wrong note, because their hand movements don't match." This finding aligns with Forrester's (2018) research, which confirms that kinesthetic-tactile representation of hand signs strengthens auditory memory and forms a spatial understanding of the relationships between pitches.

Hand signs serve as a powerful visual tool to concretely interpret the abstract concept of pitch. Students previously confused by staff notation can more easily understand the direction of the melody (ascending, descending, or fixed) through hand gestures. Analysis of instructional videos shows that students actively use hand signs as "crutches" or scaffolding when singing melodic patterns before playing them on the pianica. This confirms the theory of embodied cognition (Barrett & Veblen, 2018), which emphasizes that musical thinking resides not only in the mind but also manifests through the body and movement.

Although this article is using a qualitative method, a simple test of identifying and singing 10 short melodic patterns was conducted to provide a preliminary understanding of its impact. The results showed an increase in average accuracy from 45% (pre-test) to 70% (post-test), indicating that students were developing a structural understanding of melodies rather than simply guessing.

These findings support the argument that Kodály hand signs successfully bridge the gap between the auditory, visual, and kinesthetic domains (Biasutti et al., 2015). In this context, students not only hear and see, but also feel the distance between notes through changes in their hand position. This process facilitates the formation of more robust mental schemata about melodies, ultimately accelerating the process of audiation and musical reproduction, as mandated by Kodály's philosophy.

In the planning dimension, analysis of lesson plan documents revealed significant evolution. Before the intervention, teachers' lesson plans tended to be generic and focused on the technical procedures of playing the pianica. Post-intervention, the lesson plans became more detailed and reflective, incorporating specific learning objectives for melodic perception, clear hand sign integration steps, and authentic assessment tools such as a checklist for observing students' hand sign performance. One teacher acknowledged, "Now I have a clear template. I know where to start, how to introduce concepts, and how to assess them."

Observational data showed dramatic improvements in learning implementation. The teacher shifted from a dominant instructor role to an active facilitator, modeling hand signs and providing individual feedback. The variety of teaching strategies also increased, marked by the use of game songs, call-and-response melodic pattern exercises, and simple ensemble activities with hand signs. The learning environment became more interactive and enjoyable, which stimulated students' intrinsic motivation.

In assessment, teachers have progressed from simply assessing the final product (whether a song is played correctly) to assessing the learning process. They have begun to spontaneously use formative assessment techniques, such as observing the accuracy of students' hand signs to diagnose misunderstandings about a note before the student even plays it on the pianica. This is a strong indicator of the development of music teachers' pedagogical content knowledge (Shulman, 1987), where they understand that musical errors are often rooted in erroneous perceptions.

Findings related to teacher competency improvement can be understood through the lens of scaffolding theory. This structured model serves as a scaffold, providing initial support for non-specialist teachers. It reduces their anxiety by providing a concrete framework and teaching tools (Biasutti et al., 2015). Over time, as observed, teachers began to internalize and adapt the model, showing signs of pedagogical independence and creativity. This confirms that the EDR approach not only produces a product but also empowers users.

A strong emergent theme from the interviews was teachers' increased self-efficacy. They expressed feeling more confident teaching musical concepts they had previously avoided as too difficult. "I'm no longer afraid when students ask about notes. I have a way to answer them," said one participant. This increased self-efficacy is a critical prerequisite for sustained improvement in teaching practice (Bandura, 1997).

A key theme emerging from the interview and observation data was the high level of enthusiasm among participating teachers for this hand-sign-based learning model. One teacher stated, "I've finally found a way to teach music that doesn't frustrate me or my students with reading sheet music." This sentiment reflects a common sentiment that conventional, notation-oriented approaches often present a major barrier, both for non-specialist teachers and for students. This enthusiasm manifested itself in increased attendance at training sessions, active participation in discussions, and initiatives to immediately implement the model in their classrooms. Observations indicated that teachers taught with greater confidence and energy when they were no longer tied to explaining abstract notation symbols.

These findings provide a critical perspective on the dominance of notation in early music education. Teachers' enthusiasm can be understood as a response to being freed from the burden of teaching musical grammar (notation) before students experience the language of music itself (auditory and kinesthetic). This model aligns with the musical philosophy advocated by figures such as Edwin Gordon and Zoltán Kodály, who emphasize that musical experience must precede symbolic literacy (Barrett & Veblen, 2018; Dalby, 2019). Hand signs function as living and democratic notation because they are accessible to all students, regardless of their reading ability. Thus, this model successfully deconstructs the hierarchy that places notation as an end in itself, instead making it a tool that can be introduced after musical concepts are internalized.

The enthusiasm observed is not merely a momentary euphoria, but rather an external indicator of increased teacher self-efficacy (Bandura, 1997)—their belief in their own ability to successfully teach music. Many teachers have felt like "impostors" in teaching music due to their inability to read music. By discovering an effective and theoretically legitimate method that does not rely on notational expertise, their self-confidence is restored.

This study also identified challenges, particularly at the beginning of implementation. The main obstacle was the difficulty of fine motor coordination for some students in hand signing with appropriate precision and speed. However, the teachers creatively adapted with differentiation strategies, such as providing additional motor practice and forming heterogeneous groups to collaborate with peers. This adaptability demonstrated their growing pedagogical maturity.

These findings provide a new nuance to the global discourse on the Kodály method. This research demonstrates that the method is not only effective in the context of Western music cultures, where notation literacy is common, but also highly applicable and adaptable in the Indonesian context, where music learning is often informal and oral. Theoretically, this research strengthens the application of embodied cognition theory in music pedagogy for general teachers, not just specialist teachers.

An indicator of success was the willingness of two participating teachers to implement the model in other classrooms and share it with colleagues. This demonstrates that the developed model is not only effective but also practical and adoptable. The sustainability of this model is highly likely if it is integrated into a community of practice at the school cluster level or through the Teacher Working Group (KKG) program.

While the results are promising, this study has several limitations. First, the small number of participating teachers limits the generalizability of the findings. Second, the limited duration of the study did not allow for investigation of the long-term retention of improvements in students' melodic perception. Third, the Hawthorne effect may have occurred, where participants behaved differently because they knew they were being studied.

Overall, the results and discussion confirm that the developed hand-sign-based learning model successfully achieved its objectives. This model served as a catalyst for improving students'

melodic perception through multisensory engagement and simultaneously served as a supporting framework that empowered teachers to develop their pedagogical competence and self-confidence. These findings highlight the significant potential of the embodied learning approach in revitalizing elementary music education in Indonesia.

CONCLUSION

Based on the entire data analysis process, it can be concluded that the innovative Kodály hand sign-based learning model developed through the Educational Design Research (EDR) approach has proven effective in achieving its two main objectives. First, this model significantly improves elementary school students' melodic perception. This improvement is manifested through increased auditory accuracy in recognizing pitch intervals, a better visual understanding of melodic direction, and internalization of pitch concepts through kinesthetic memory. Second, this model successfully improves teachers' pedagogical competence in terms of planning, implementing, and assessing pianica learning. Thus, this study successfully answers the research questions posed, demonstrating that hand sign is not only a tool for students, but also a powerful scaffolding for teachers' professional development (Biasutti et al., 2015; Forrester, 2018).

The main theoretical contribution of this research is the integration of the principles of the Kodály method with the pedagogical content knowledge (PCK) framework (Shulman, 1987) in the context of classroom teacher education. This research expands the discourse of embodied cognition theory by showing how physical representation (hand signs) can be a bridge to understanding abstract musical concepts, while also functioning as a tool to develop the PCK of non-specialist teachers. Practically, this research produces a prototype model that is contextual and ready to be adopted for the Indonesian education system. The model and its learning tools (RPP, LKPD, video tutorials) provide a structured and practical solution for teachers and schools to overcome challenges in music learning, which ultimately can improve students' basic musical literacy.

Although the results are following our expectation, these findings should be viewed in light of several limitations. First, the generalizability of the findings is limited by the small sample size and specific geographic context. Second, the limited duration of the study did not allow for exploration of the long-term retention of students' melodic perception improvements and the sustainability of teachers' pedagogical practices. Third, although triangulation was performed, the qualitative nature of the intervention makes it difficult to fully isolate the Hawthorne effect. Therefore, interpretation of the results should be done with caution, taking this context into account.

Based on the findings and limitations, there are at least three directions for future research. First, further research using a quasi-experimental design involving a control group and a larger, more diverse sample is needed to test the external validity and effectiveness of the model. Second, longitudinal research is needed to investigate the long-term impact of the model on students' musical development and the transformation of teachers' teaching practices. Third, further development research could focus on developing training modules based on this model for Teacher Working Group (KKG) activities or teacher equivalency programs. From a policy perspective, these findings recommend that the Ministry of Education and Culture and regional education offices consider integrating the principles of this hand-sign-based pedagogy into in-service teacher training curricula and pre-service teacher professional education materials to build sustainable teacher capacity in arts education.

ACKNOWLEDGMENTS

The authors express their deepest appreciation and gratitude to the Institute for Research and Community Service (LPPM) of Jakarta State University (UNJ) for their financial support. This financial support and facilities have been essential for the smooth and successful completion of all stages of this research, from planning and data collection to analysis.

We also extend our sincere thanks to all teachers and students at SDIT Nurul Islam Bekasi City who participated with sincerity and enthusiasm throughout the research process. We also

extend our gratitude to the expert validators who provided invaluable input and constructive criticism to improve this learning model. The collective contributions of all parties have made this scientific work possible.

REFERENCES

- Bandura, A. (1997). Self-efficacy: The exercise of control. W.H. Freeman.
- Barrett, J. R., & Veblen, K. K. (2018). Meaningful connections in a comprehensive approach to the music curriculum. In S. M. Heath & D. G. Woods (Eds.), *The Oxford handbook of music education* (Vol. 2). Oxford University Press.
- Biasutti, M., Hennessy, S., & de Vugt-Jansen, E. (2015). Confidence and competence in primary school music teaching: A mixed-methods study. *British Journal of Music Education*, 32(3), 247–267. <https://doi.org/10.1017/S0265051715000114>
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77–101. <https://doi.org/10.1191/1478088706qp063oa>
- Creswell, J. W., & Poth, C. N. (2018). *Qualitative inquiry and research design: Choosing among five approaches* (4th ed.). SAGE Publications.
- Dalby, B. (2019). Kodály-inspired teaching: A bridge to musical fluency. *Music Educators Journal*, 106(2), 41–47. <https://doi.org/10.1177/0027432119877102>
- Forrester, S. H. (2018). The effects of Kodály hand signs on sight-singing skills of fifth-grade students. *International Journal of Music Education*, 36(4), 521–532. <https://doi.org/10.1177/0255761418772860>
- Plomp, T., & Nieveen, N. (Eds.). (2013). *Educational design research*. SLO.
- Shulman, L. S. (1987). Knowledge and teaching: Foundations of the new reform. *Harvard Educational Review*, 57(1), 1–23. <https://doi.org/10.17763/haer.57.1.j463w79r56455411>
- Van den Akker, J., Gravemeijer, K., McKenney, S., & Nieveen, N. (Eds.). (2006). *Educational design research*. Routledge.