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RHYTHMIC SIGN LANGUAGE IN SPLIT-SCREEN BALINESE DANCE TUTORIALS: AN INCLUSIVE LEARNING MODEL FOR DEAF DANCERS

I Wayan Agus Eka Cahyadi[1]*, I Nyoman Larry Julianto[2], Vanesa Martida[3], Gede Pasek Putra Adnyana Yasa[4]

Institut Seni Indonesia Bali, Denpasar, Indonesia.

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Abstract: The learning of traditional Balinese dance for Deaf persons with disabilities continues to face challenges in understanding rhythm, tempo, and movement synchronization because most dance instruction is delivered through auditory media. This study aims to analyze the development and implementation of split-screen Balinese dance tutorial videos that integrate rhythmic sign language as an inclusive dance learning model for Deaf dancers. The study employed a qualitative approach using a Design-Based Research (DBR) design within the Larajiva Community Bali. Data were collected through observation, semi-structured interviews, video documentation, and focus group discussions, and were analyzed using thematic analysis. The findings indicate that the instructional media developed consisted of two tutorial videos: Pendet Dance for female dancers and Baris Dance for male dancers. The split-screen design enabled learners to observe dance movement demonstrations on the left side of the screen and rhythmic sign language performed by the instructor on the right side simultaneously. Analysis of the sectional structures of *Pendet Dance* (*Pepeson*, *Pengadeg*, and *Panyuwud/Pekaad*) and *Baris Dance* (*Pepeson*, *Pengawak*, *Pengecet*, and *Pekaad*) revealed that rhythmic sign language functioned as a marker of beats, tempo changes, movement accents, and choreographic transitions synchronized with the gamelan accompaniment. The integration of dance movements, rhythmic sign language, and musical structure created a multimodal learning system that enhanced accessibility, rhythm comprehension, movement synchronization, and independent learning among Deaf dancers. This study proposes a culturally grounded model of inclusive Balinese dance pedagogy that can be applied in other arts communities and inclusive dance education settings.

Keywords: rhythmic sign language, split-screen, Balinese dance, inclusive dance learning, Deaf dancers, Larajiva Community.

1. Introduction

Inclusive arts education is increasingly regarded as an essential component of efforts to achieve equitable, participatory, and sustainable education. UNESCO emphasizes that culture and the arts constitute important resources for human development and should be integrated into educational systems to support more inclusive and resilient societies (UNESCO, 2023). The implementation guidelines of the *UNESCO Framework for Culture and Arts Education* state that arts education should be designed to be accessible to all learners, including persons with disabilities, through learning environments that are responsive to diverse sensory and social needs (UNESCO, 2025). This perspective positions the arts not merely as aesthetic activities, but also as instruments of empowerment, cultural participation, and social identity formation.

In the context of dance education, the principle of inclusion faces more complex challenges because dance learning relies heavily on rhythm, tempo, movement synchronization, and nonverbal communication. For Deaf individuals, most musical information conveyed through sound cannot be accessed directly. These barriers often require intensive visual adaptation in order for learners to adequately understand movement structures and musical rhythms. Collins et al. (2021) argue that the primary barriers to participation in the performing arts for persons with disabilities lie in access to communication systems and opportunities for participation rather than in individual artistic ability. This finding reinforces the *social model of disability*, which views disability as arising from learning environments that have not yet become fully inclusive.

International studies have also demonstrated that inclusively designed arts education has positive effects on social participation, self-expression, emotional well-being, and empowerment among persons with disabilities (UNICEF Innocenti, 2025). A systematic review of arts education for learners with disabilities found that program success

*Corresponding Author
I Wayan Agus Eka Cahyadi*
Email: cahyadiaguseka@gmail.com

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depends greatly on the quality of pedagogical support and instructional media employed (Mareza et al., 2025). However, the literature also indicates that research on visual-based dance learning strategies specifically designed for Deaf learners remains limited.

The development of digital technology has created new opportunities to improve accessibility in arts education. UNESCO IITE (2021a) highlights that information and communication technologies can play an important role in creating more inclusive learning environments for persons with disabilities by providing alternative forms of information representation. In dance learning contexts, video media, animation, and interactive visual systems enable rhythm and movement structures to be represented visually, making them easier for Deaf learners to understand. This principle is consistent with *Multimedia Learning Theory*, which states that learning becomes more effective when information is presented through integrated visual and verbal representations (Mayer, 2021).

Nevertheless, most existing dance learning media still position visual elements merely as supplements to auditory instruction. Research on the integration of rhythmic sign language and musical beat visualization in dance tutorials remains relatively scarce, particularly in the context of traditional dance grounded in local culture. Moreover, studies examining split-screen instructional media that simultaneously display dance demonstrations and sign language are virtually absent from the Indonesian inclusive dance education literature. This research gap indicates the need to develop learning models capable of bridging the relationship between musical structure and the visual learning experiences of Deaf dancers.

This study was conducted within the Larajiva Community in Bali, an inclusive arts community that actively involves Deaf individuals in dance and performing arts activities. Preliminary observations and documentation from community service programs revealed that instructors experienced difficulties in communicating gamelan beats, tempo changes, and movement synchronization to Deaf learners. To address this need, two Balinese dance tutorial videos were developed: *Pendet Dance* for female dancers and *Baris Dance* for male dancers. Both videos employ a split-screen design in which the left side displays the dance demonstration, while the right side features Wahyu, the founder of the Larajiva Community, providing rhythmic sign language using both hands to communicate gamelan beats and tempo changes in real time.

The primary innovation of this instructional media lies in the use of rhythmic sign language, a sign system that functions as a visual representation of musical rhythm. The signs convey not only linguistic meaning but also basic beats, strong accents, tempo changes, movement transitions, and the closing of dance phrases. From the perspective of dance pedagogy, this system functions as a *visual metronome* that assists Deaf dancers in understanding musical structures through visual observation. Presenting both visual fields simultaneously allows learners to connect dance movements with rhythmic information without shifting attention between separate sources, thereby potentially reducing cognitive load during learning.

Pendet Dance and *Baris Dance* were selected because they represent important forms of traditional Balinese dance with distinct movement qualities and musical structures. *Pendet Dance* emphasizes gentle, ritualistic, and repetitive movement qualities through the sections *Pepeson*, *Pengadeg*, and *Panyuwud/Pekaad*, whereas *Baris Dance* exhibits heroic, firm, and dynamic characteristics through the sections *Pepeson*, *Pengawak*, *Pengecet*, and *Pekaad*. These contrasting characteristics provide a rich context for examining how rhythmic sign language adapts to variations in tempo, accent, and movement quality within Balinese dance.

Based on the foregoing discussion, this study aims to analyze the development and implementation of split-screen Balinese dance tutorial videos integrating rhythmic sign language as an inclusive dance learning model for Deaf dancers. Specifically, the study examines the relationship between dance structure, movement patterns, and rhythmic sign language in supporting rhythm comprehension, movement synchronization, and accessibility in traditional Balinese dance learning. This research is expected to contribute theoretically to the development of culturally grounded inclusive dance pedagogy and to offer a practical arts learning model that can be replicated in other arts communities and inclusive educational institutions.

2. Literature Review / Theoretical Framework

2.1 Inclusive Arts Education and the Right to Cultural Participation

Inclusive arts education has developed from the broader paradigm of inclusive education, which positions cultural participation as a fundamental right of every individual. UNESCO (2023) emphasizes that the arts and culture play a strategic role in building inclusive societies by enabling individuals to participate in the production, appreciation, and transmission of cultural knowledge. Within the *UNESCO Framework for Culture and Arts Education*, access to arts education is regarded as part of cultural rights that must be available to all learners without discrimination based on physical, sensory, social, or economic conditions (UNESCO, 2025).

In the context of persons with disabilities, arts education functions not only as a means of aesthetic expression but also as a medium for social empowerment and identity formation. Through an international systematic review, UNICEF Innocenti (2025) found that participation in arts activities contributes to increased self-confidence, social communication, emotional well-being, and community

participation among children and adolescents with disabilities. These findings indicate that the success of inclusive arts education should be measured not only by artistic skill acquisition but also by the quality of learners' social participation and cultural experiences.

Nevertheless, Collins et al. (2021) argue that the primary barriers to arts participation for persons with disabilities often lie in communication systems and learning structures that remain inaccessible. In the performing arts, the dominance of verbal and auditory instruction may reduce opportunities for participation among Deaf individuals. Therefore, the development of inclusive arts education requires transformation in teaching methods, communication media, and learning environments to become more responsive to the diversity of learners' sensory modalities.

2.2 Deaf Studies and Visual-Based Learning

Deaf Studies provides an important foundation for understanding how Deaf individuals process information and construct learning experiences. Marschark and Spencer (2016) explain that Deaf individuals tend to rely on visual channels as their primary modality for receiving and organizing information. This reliance on visual modality does not indicate cognitive deficit; rather, it reflects differences in perceptual and information-processing strategies.

In performing arts learning, the implications of these findings are highly significant. Rhythm, tempo, and musical accents that are typically conveyed through sound need to be translated into visual representations in order to be effectively understood by Deaf learners. Valli (2011) emphasizes that Deaf communities possess traditions of rhythmic expression based on bodily movement, sign language, and visual patterns that enable musical experiences to be constructed through visual and kinesthetic perception. Consequently, dance learning for Deaf dancers should not be framed as an adaptation to hearing impairment, but as the development of a visually oriented artistic communication system.

This perspective is consistent with the Deaf cultural paradigm, which regards sign language as a complete visual language and an integral part of cultural identity. In the present study, rhythmic sign language is understood as an extension of sign language toward the representation of rhythm and musical structure, thereby enabling Deaf dancers to access the temporal dimensions of dance through visual observation.

2.3 Multimedia Learning Theory in Dance Education

Multimedia Learning Theory, developed by Mayer (2021), proposes that learning becomes more effective when information is presented through integrated visual and verbal representations. The theory is based on three main assumptions: *dual channel*, *limited capacity*, and *active processing*. Visual and verbal information are processed through separate channels; each channel has limited capacity; and learning occurs when learners actively select, organize, and integrate information.

In this study, the split-screen design allows dance demonstrations and rhythmic sign language to be processed simultaneously through related visual channels. The principle of *spatial contiguity* is fulfilled because both types of information are positioned side by side within a single visual field. In addition, the principle of *signaling* is implemented through Wahyu's hand movements, which indicate beats, accents, and tempo changes. These visual cues help learners focus their attention on the most important rhythmic information.

The finding that the need for repeated demonstrations decreased can be explained by reduced cognitive load. When rhythm is visualized explicitly, learners no longer need to infer tempo structure solely from body movements. As a result, cognitive resources can be allocated to movement coordination and choreographic understanding. This finding suggests that *Multimedia Learning Theory* is relevant not only to text- and image-based academic learning but also to traditional movement-based dance education.

2.4 Universal Design for Learning (UDL) and Learning Accessibility

The *Universal Design for Learning* framework (CAST, 2024) emphasizes that learning environments should be designed from the outset to accommodate learner diversity. The three core UDL principles are *multiple means of representation*, *multiple means of engagement*, and *multiple means of action and expression*. The present study is primarily related to the first principle, namely the provision of multiple forms of information representation.

The split-screen tutorial videos provide two visual representations simultaneously: a kinesthetic representation through dance movement demonstrations and a visual-manual representation through rhythmic sign language. This dual presentation enables Deaf learners to choose the perceptual pathway that is most effective for them. Furthermore, the videos can be replayed independently, thereby supporting the principle of *engagement* through greater learner control over the learning process.

From a UDL perspective, the success of this instructional media lies in its design, which considered the needs of Deaf users from the beginning rather than merely adding accessibility features after the media had been completed. This approach demonstrates that effective accessibility requires the integration of inclusive principles at the conceptual stage of instructional media development.

2.5 Visual Communication Design and Movement Learning

Visual communication design views visual elements as the primary means of conveying information and constructing meaning. Lidwell, Holden, and Butler (2021) explain that effective visual communication depends on a design's ability to establish information hierarchy, direct attention, and maintain visual readability. In instructional media, visual layout influences how learners organize information and build relationships among elements.

The split-screen format employed in this study represents a visual communication strategy that allows two sources of information to be displayed simultaneously. Positioning the dance demonstration on the left side and the rhythmic sign language on the right side creates a stable pattern of visual attention. Learners do not need to engage in complex visual searching because the relationship between movement and rhythm is presented explicitly within the same visual space.

Wahyu's hand movements also exhibit characteristics of natural *motion graphics*. Variations in direction, speed, movement size, and visual accents are used to convey temporal information dynamically. Thus, rhythmic sign language can be understood as a dynamic visual communication system that communicates musical time structure in real time. This approach extends the function of visual communication design from conveying static information to facilitating rhythmic and kinesthetic experiences.

2.6 Inclusive Dance Pedagogy and Embodied Learning

Inclusive dance pedagogy emphasizes that every body possesses artistic potential and distinct ways of learning. Whatley, Kalogera, and Holland (2022) argue that inclusive dance education must acknowledge diversity in bodies, sensory experiences, and cultural backgrounds. This approach rejects a single standard of the dancer's body and instead prioritizes participation, movement exploration, and artistic communication.

Benjamin (2020) further argues that dance learning for persons with disabilities should be built through negotiation between choreographic structure and learners' embodied experiences. In the present study, rhythmic sign language functions as a form of *scaffolding* that helps Deaf dancers establish connections among the body, rhythm, and performance space.

The uniqueness of this study lies in its application of inclusive dance pedagogy within the context of traditional Balinese dance, which possesses strong rhythmic and symbolic structures. *Pendet Dance* and *Baris Dance* were not simplified; instead, their traditional sectional structures were preserved while additional visual support was provided. This finding demonstrates that inclusion does not require the elimination of the artistic complexity inherent in dance traditions.

2.7 Rhythmic Sign Language as Visual Rhythm Representation

In this study, the concept of rhythmic sign language refers to the use of sign language and hand cues to represent basic beats, strong accents, tempo changes, movement transitions, and the closing of dance phrases. This concept extends the function of sign language from linguistic communication to temporal-musical communication.

Preliminary analysis of the *Pendet* and *Baris* tutorial videos revealed that rhythmic sign patterns change according to the character of the dance. In *Pendet Dance*, hand movements tend to be gentle, repetitive, and aligned with ritual offering patterns, whereas in *Baris Dance*, hand movements are faster, firmer, and marked by strong accents that correspond to the dance's heroic character. This adaptation indicates that rhythmic sign language is not a fixed symbolic system but a rhythmic representation system responsive to movement quality and musical structure.

Conceptually, rhythmic sign language operates through three main mechanisms: (1) rhythm visualization, namely transforming musical beats into observable hand movements; (2) temporal synchronization, namely aligning dancers' movements with the structure of the gamelan music; and (3) choreographic scaffolding, namely assisting dancers in remembering movement sequences and phrase transitions. These three mechanisms position rhythmic sign language as a visual mediator between music and the dancer's body.

2.8 Synthesis of the Theoretical Framework

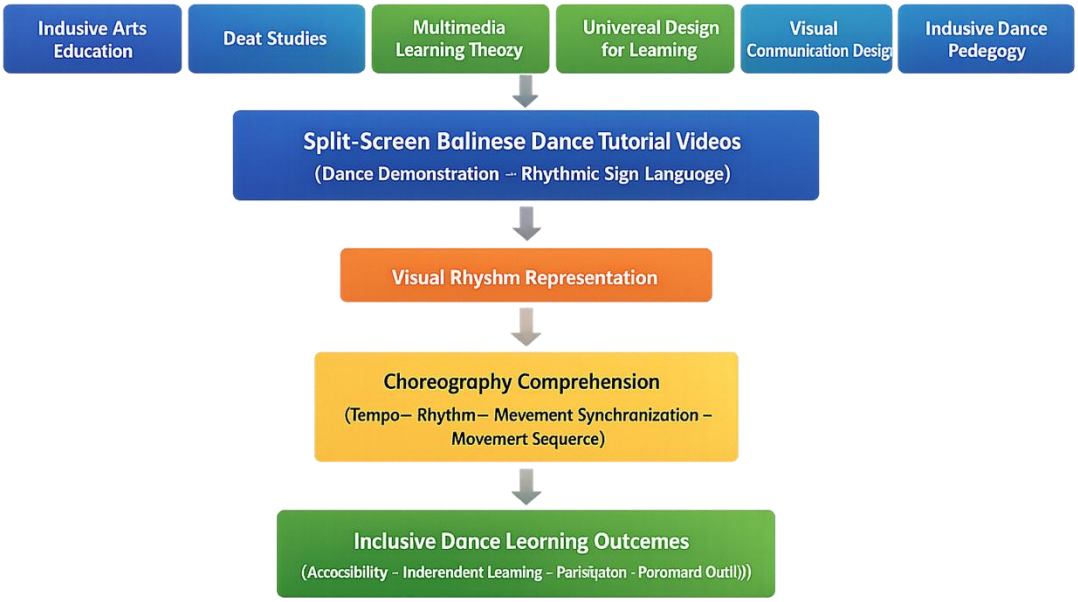
Based on the literature reviewed above, this study integrates six major theoretical foundations: (1) Inclusive Arts Education, (2) Deaf Studies, (3) Multimedia Learning Theory, (4) Universal Design for Learning, (5) Visual Communication Design, and (6) Inclusive Dance Pedagogy. The integration of these theories produces a conceptual framework proposing that dance learning for Deaf dancers becomes more effective when musical information is translated into structured visual representations, presented simultaneously with movement demonstrations, and designed according to principles of visual accessibility.

Within this framework, rhythmic sign language functions as a visual mediator between gamelan rhythmic structure and Deaf dancers' choreographic understanding, while the split-screen design provides a visual environment that enables simultaneous integration of movement and rhythmic information. This theoretical framework serves as the basis for analyzing the research findings and developing a culturally grounded and technologically supported model of inclusive Balinese dance pedagogy.

3. Conceptual Framework

The conceptual framework of this study illustrates the relationships among the theoretical foundations, instructional media design, pedagogical processes, choreographic comprehension, and inclusive dance learning outcomes for Deaf dancers. The framework demonstrates that rhythmic sign language functions as a visual mediator between the musical structure of Balinese gamelan and the understanding of dance movement.

Figure 1. Conceptual Framework of Rhythmic Sign Language–Based Inclusive Dance Learning.



Source: Developed by the authors (2026).

The framework indicates that inclusive dance learning for Deaf dancers is grounded in six major theoretical foundations: Inclusive Arts Education, Deaf Studies, Multimedia Learning Theory, Universal Design for Learning, Visual Communication Design, and Inclusive Dance Pedagogy. These theoretical foundations guide the development of Split-Screen Balinese Dance Tutorial Videos, which integrate dance movement demonstrations and Rhythmic Sign Language. This integration produces Visual Rhythm Representation, which supports Choreography Comprehension through the understanding of tempo, rhythm, movement synchronization, and movement sequences. Ultimately, this process leads to Inclusive Dance Learning Outcomes, including improved accessibility, independent learning, participation, and dance performance quality.

4. Methodology

4.1 Research Design

This study employed a qualitative approach using a Design-Based Research (DBR) design. The DBR approach was selected because the study aimed not only to understand the phenomenon of dance learning among Deaf dancers but also to develop, implement, and evaluate instructional media within the real context of an arts community. The DBR model followed Reeves (2006), which includes the stages of practical problem analysis, solution development, implementation and evaluation, and reflection to generate pedagogical design principles.

4.2 Research Site and Participants

The study was conducted at the Larajiva Community Bali, an inclusive arts community that actively involves Deaf individuals in dance and performing arts activities. Participants were selected purposively based on their direct involvement in the development and use of the instructional media. The participants consisted of:

1. Wahyu, the founder of the community and facilitator of rhythmic sign language;
2. dance instructors involved in the training sessions; and
3. Deaf dancers participating in the dance training program.

The selection of these participants enabled the researchers to obtain pedagogical, technical, and experiential perspectives directly related to the learning process.

4.3 Research Objects

The research objects consisted of two split-screen Balinese dance tutorial videos:

- Pendet Dance Tutorial Video for female dancers; and

- Baris Dance Tutorial Video for male dancers.

Both videos display dance movement demonstrations on the left side of the screen and rhythmic sign language on the right side, synchronized with the gamelan accompaniment in real time.

4.4 Data Collection Techniques

Data were collected through four main techniques.

a. Participatory Observation

Observations were conducted during training sessions and during the use of the tutorial videos to identify interaction patterns, learning difficulties, and participants' responses to the instructional media.

b. Semi-Structured Interviews

Interviews were conducted with dance instructors, the rhythmic sign language facilitator, and Deaf dancers to obtain information regarding learning experiences, perceptions of the media, and changes experienced during the training process.

c. Audiovisual Documentation

Documentation included tutorial video recordings, training session recordings, storyboards, and screenshots used for visual analysis of dance movements and rhythmic sign language.

d. Focus Group Discussion (FGD)

FGDs were conducted after the implementation of the media to obtain collective feedback regarding accessibility, visual readability, and the effectiveness of the tutorial videos.

4.5 Procedure of Media Development

The instructional media were developed through five stages:

1. identifying the dance learning needs of Deaf dancers;
2. analyzing the choreographic structure and gamelan rhythms of Pendet Dance and Baris Dance;
3. designing rhythmic sign language patterns;
4. producing the split-screen videos; and
5. implementing, evaluating, and revising the media based on user feedback.

The choreographic analysis stage considered the traditional sectional structures of both dances so that the media would preserve the cultural conventions of Balinese dance.

4.6 Data Analysis

Data were analyzed using thematic analysis (Braun & Clarke, 2022) through the following stages:

1. data familiarization;
2. initial coding;
3. theme development;
4. theme review;
5. theme naming; and
6. interpretative report writing.

The analysis focused on the relationships among dance sections, movement patterns, rhythmic sign language, and the learning outcomes of Deaf dancers.

4.7 Trustworthiness

Trustworthiness was ensured through methodological triangulation (observation, interviews, documentation, and FGD), source triangulation (instructors and Deaf dancers), member checking, and peer debriefing. These procedures were employed to enhance the credibility and consistency of the data interpretation.

4.8 Ethical Considerations

All participants provided informed consent to participate in the study and to allow the use of audiovisual documentation for academic purposes. Participants' identities were anonymized in the reporting of findings, and the study was conducted with respect for the dignity, participation rights, and accessibility needs of Deaf participants.

5. Results

5.1 Initial Conditions of Dance Learning for Deaf Dancers

Preliminary observations revealed that Deaf dancers experienced major difficulties in understanding gamelan beats, tempo changes, and movement synchronization. Instructors had to repeat movement demonstrations several times to ensure that participants understood rhythmic transitions and choreographic structures. As a result, training sessions became longer and instructional communication relied heavily on direct visual contact.

Interview findings indicated that participants found it easier to follow movements when hand cues were provided to indicate when movements should begin, accelerate, slow down, or end. These findings became the basis for developing split-screen tutorial media incorporating rhythmic sign language.

5.2 Development of Split-Screen Balinese Dance Tutorial Videos

The study produced two tutorial videos: Pendet Dance and Baris Dance. Both videos employed a split-screen format with dance movement demonstrations on the left side and rhythmic sign language on the right side. This design enabled participants to observe the relationship between dance movements and rhythmic information simultaneously.

Figure 2. Opening section showing Wahyu introducing himself and providing information through sign language.



Figure 3. The Baris dancer performs the *left agem* posture while looking forward; the instructor demonstrates the corresponding *agem* sign with hand gestures and forward gaze.



Figure 4. The Baris dancer performs the *left agem* posture while looking to the left; the instructor similarly demonstrates the sign with hand gestures and leftward gaze.

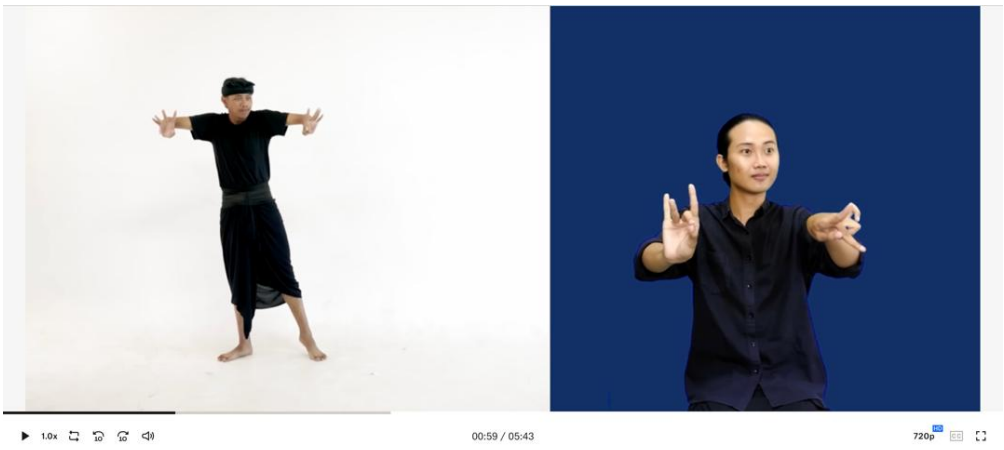


Figure 5. The Baris dancer raises one leg while the instructor provides a cue by holding the right palm upward at chest level.

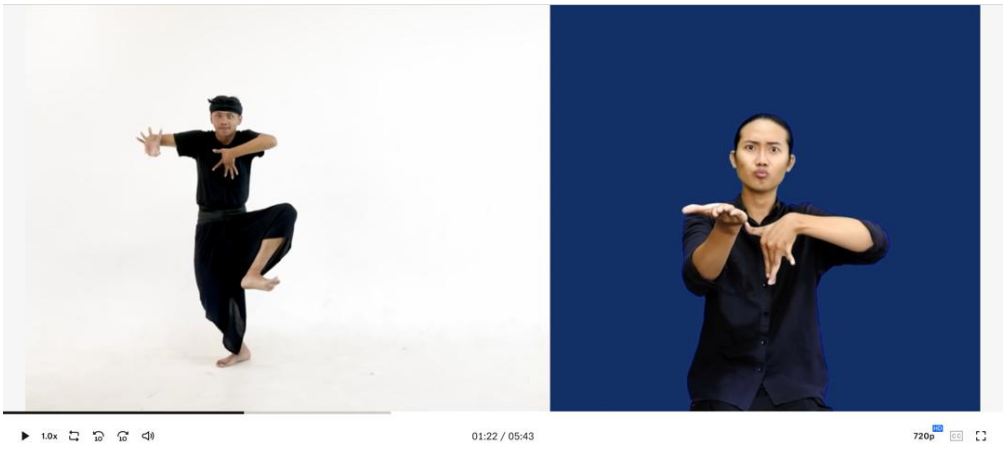


Figure 6. During the Baris dance walking sequence with forceful foot stamping, the instructor simultaneously performs rhythmic sign language with up-and-down hand movements.

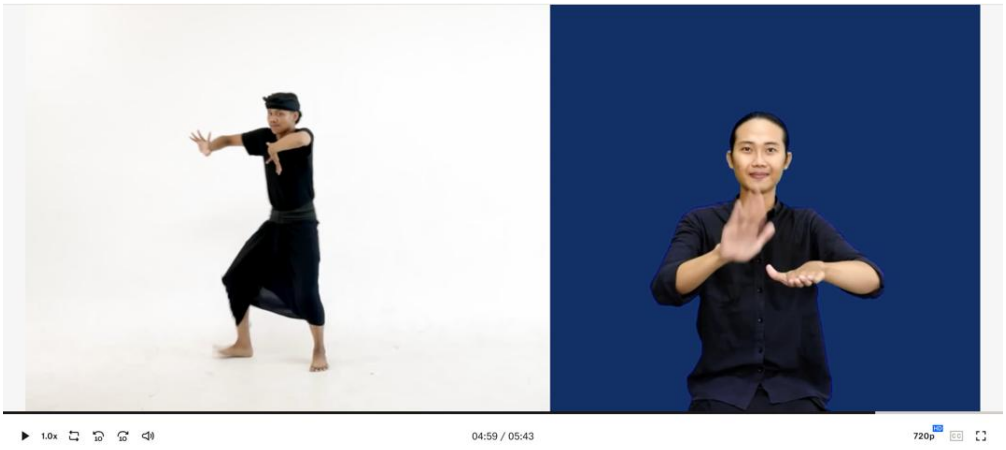


Figure 7. Closing section showing the end of the dance, with the instructor placing both hands together in front of the chest as a closing gesture.



Wahyu used both hands to communicate basic beats, strong accents, tempo changes, movement transitions, and the closing of dance phrases synchronized with the gamelan accompaniment. Visual analysis demonstrated that changes in hand patterns consistently occurred simultaneously with changes in the dancer's movement quality.

5.3 Classification of Dance Movements and Rhythmic Sign Language

Dance movements were classified into six main categories: (1) basic posture (*agem*), (2) facial expression and gaze (*tangkep*), (3) rhythmic steps, (4) expressive hand movements, (5) spatial transition movements, and (6) closing movements.

Rhythmic sign language was classified into five categories: (1) basic beat markers, (2) strong accent markers, (3) transition markers, (4) numerical counting cues, and (5) slowing-down or ending markers. This classification indicates that rhythmic sign language constitutes a structured temporal representation system.

5.4 Multimodal Synchronization

A major finding of the study was the consistent synchronization among dance movements, rhythmic sign language, and gamelan rhythm. When the tempo increased, hand movements became faster and larger; when the tempo slowed, hand movements became calmer and more stable. This pattern indicates that rhythmic sign language functions as a visual metronome that provides real-time tempo information.

The split-screen design allowed learners to observe both information sources simultaneously, enabling them to understand the relationship between movement and rhythm without excessive shifts in visual attention.

5.5 Inclusive Dance Learning Outcomes

Observations of the media implementation revealed several important changes: 1) participants recognized the beginning and end of movement phrases more quickly; 2) the need for repeated demonstrations by instructors decreased; 3) participants were better able to maintain group movement tempo; 4) independent practice using the videos became more feasible; and 5) participant engagement during training increased.

Overall, the integration of dance movement demonstrations and rhythmic sign language within a split-screen format produced a multimodal learning system that enhanced accessibility, rhythm comprehension, movement synchronization, and independent learning among Deaf dancers.

6. Discussion

The findings of this study indicate that rhythmic sign language functions as a visual representation of the gamelan rhythmic structure in the learning of *Pendet Dance* and *Baris Dance*. The sign language used in the tutorial videos conveys not only linguistic meaning but also basic beats, strong accents, tempo changes, movement transitions, and the closing of dance phrases. These findings support Valli's (2011) argument that musical experiences within Deaf communities can be constructed through visual movement patterns and bodily rhythm without full dependence on hearing.

From the perspective of *Multimedia Learning* (Mayer, 2021), the split-screen design fulfills the principle of *spatial contiguity* because dance movement demonstrations and rhythmic sign language are positioned side by side within a single visual field of attention. The principle of *signaling* is also evident in Wahyu's hand movements, which direct learners' attention to important beats and tempo changes. The reduced need for repeated demonstrations suggests a decrease in cognitive load because rhythmic information has been made explicitly visible.

From the perspective of *Universal Design for Learning* (CAST, 2024), the tutorial videos provide *multiple means of representation* through two complementary visual representations: dance movements and rhythmic sign language. Participants' ability to practice independently using the videos also demonstrates support for *multiple means of engagement*. These findings reinforce the argument that accessibility is most effectively achieved through inclusive instructional design from the initial planning stage.

From the viewpoint of visual communication design, the split-screen format proved effective in establishing a direct visual relationship between dance movements and rhythmic information. The consistent placement of the left and right visual fields created a stable pattern of visual attention and reduced the need for separate information searching. Wahyu's hand movements exhibit characteristics of natural *motion graphics* because they employ variations in direction, size, speed, and visual accents to communicate temporal information dynamically.

This study also demonstrates that the media innovation did not eliminate the traditional conventions of *Pendet Dance* and *Baris Dance*. The sectional structures of both dances were preserved intact, allowing accessibility to be developed without compromising the aesthetic and cultural integrity of Balinese dance. In *Pendet Dance*, rhythmic sign language supported the understanding of ritual tempo changes, whereas in *Baris Dance* it facilitated understanding of the transformation of energy from a vigilant stance to an explosive heroic movement quality.

Theoretically, this study introduces the concept of rhythmic sign language as a visual mediator between music and movement within inclusive dance pedagogy. This concept extends the study of sign language from a linguistic function

toward a temporal-musical function. Practically, the instructional model developed in this study can be replicated in other traditional dances with strong rhythmic structures and can be implemented in arts communities as well as inclusive educational institutions.

This study remains limited to a single arts community and has not examined the long-term impact on participants' dance skills. Future research is recommended to involve a larger number of Deaf communities, employ mixed-method approaches to measure skill improvement quantitatively, and develop a more standardized rhythmic sign language system for various forms of Indonesian traditional dance.

7. Conclusion

This study demonstrates that the integration of rhythmic sign language into split-screen Balinese dance tutorial videos can enhance the accessibility of dance learning for Deaf dancers without eliminating the aesthetic and cultural structures of traditional Balinese dance. Through the development of two tutorial videos—*Pendet Dance* and *Baris Dance*—the study confirms that gamelan rhythmic information can be translated into visual representations that are directly observable through the facilitator's hand movements. Rhythmic sign language functions as a marker of basic beats, strong accents, tempo changes, movement transitions, and the closing of dance phrases, thereby assisting Deaf dancers in understanding choreographic structures in a more systematic manner.

The findings also indicate that the split-screen design enables learners to observe dance movement demonstrations and rhythmic sign language simultaneously. This visual integration supports rhythm comprehension, movement synchronization, and retention of choreographic sequences while reducing the need for repeated instructional demonstrations. From the perspective of inclusive pedagogy, the media developed in this study promotes independent learning and increases the active participation of Deaf dancers during dance training.

Theoretically, this study contributes to the development of inclusive dance pedagogy by introducing the concept of rhythmic sign language as a visual mediator between music and movement. The concept expands sign language studies from a linguistic function to a temporal-musical function within the performing arts. The study also demonstrates that the principles of *Multimedia Learning*, *Universal Design for Learning*, and visual communication design can be applied productively in traditional dance education grounded in local cultural contexts.

Practically, the instructional model produced in this study can be replicated in other traditional dances with strong rhythmic structures and implemented in arts communities and inclusive educational institutions. Nevertheless, the study is limited to a single arts community and has not examined the long-term effects on learners' dance skills. Therefore, future research is recommended to involve a larger number of Deaf communities, employ mixed-method approaches to measure skill improvement quantitatively, and develop a more standardized rhythmic sign language system for various Indonesian traditional dances.

Overall, this study confirms that inclusive traditional Balinese dance learning can be realized through the integration of visual technology, rhythmic sign language, and culturally grounded pedagogy, thereby opening broader opportunities for cultural participation among Deaf persons with disabilities.

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