

Bia Music in Batu Village, Likupang, North Minahasa

Sri Sunarmi^{1*} , R. A. Dinar Sri Hartati² , Putri Reina Gandawari³ 

¹⁻³ Program Studi Pendidikan Seni Drama, Tari, dan Musik, Fakultas Bahasa dan Seni, Universitas Negeri Manado, Tondano 95618, Indonesia

ARTICLE INFO	ABSTRACT
Received: September 19, 2026	This study investigates Bia Music in Batu Village, South Likupang District, North Minahasa Regency, North Sulawesi, focusing on its historical development, organological characteristics, sound production, playing techniques, socio-cultural functions, and sustainability. A qualitative descriptive approach was employed, with data collected through literature review, observation, documentation, and interviews with community members, performers, and local cultural informants. Data were analyzed through data reduction, descriptive presentation, interpretation, and cross-source comparison to strengthen validity. The findings indicate that Bia Music originated from the use of marine shells as signaling instruments and subsequently developed into an organized musical ensemble through local creativity and experimentation. Organologically, Bia is classified as an aerophone because its sound is produced through controlled airflow and resonance within the shell cavity. Different shell types and sizes, including <i>Charonia tritonis</i> , <i>Cassis cornuta</i> , and <i>Stramonita haemastoma</i> , are adapted as melodic and accompanying instruments with differentiated pitch functions. Sound characteristics are strongly influenced by shell morphology, cavity dimensions, embouchure, and blowing pressure, while production and tuning require practical knowledge, precision, and repeated comparison with reference pitches. Bia Music currently functions in entertainment, religious activities, community events, cultural festivals, education, tourism, social interaction, and cultural identity formation. However, its continuity faces challenges related to environmental degradation, declining shell availability, performer regeneration, and cultural transmission. The study concludes that Bia Music constitutes living cultural heritage whose sustainability requires integrated strategies involving intergenerational transmission, documentation, cultural education, community participation, institutional support, artistic development, and environmental conservation.
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* Corresponding Author: srisunarmi@unima.ac.id

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1. Introduction

Indonesia is a country endowed with abundant natural resources and remarkable cultural diversity. This diversity is reflected in the existence of various ethnic groups, languages, traditions, performing arts, and cultural expressions that have developed across different regions. One province that strongly represents this diversity is North Sulawesi. Administratively, North Sulawesi consists of 15 regencies and cities, namely Bolaang Mongondow, South Bolaang Mongondow, East Bolaang Mongondow, North Bolaang Mongondow, Sangihe Islands, Siau Tagulandang Biaro (Sitaro) Islands, Talaud Islands, Minahasa, South Minahasa, Southeast Minahasa, North Minahasa, Bitung City, Manado City, Tomohon City, and Kotamobagu City. Its geographical characteristics, encompassing coastal areas, islands, mountains, and hills, have contributed to the formation of diverse social and cultural practices. Recent statistical data also indicate substantial regional variations in demographic, socioeconomic, and territorial characteristics across North Sulawesi, which are important for understanding the development of local communities and cultures (Badan Pusat Statistik Provinsi Sulawesi Utara, 2026).

The cultural diversity of North Sulawesi is also reflected in its traditional arts. Communities in the province maintain various forms of traditional art, including Maengket, Kabasaran Dance, Kolintang music, Bamboo music, and Musik Bia. These artistic forms function not merely as entertainment but also as expressions of social identity, cultural values, collective memory, and community relationships. Traditional music and performing arts are commonly presented during customary ceremonies, religious activities, weddings, welcoming ceremonies, cultural festivals, and other social events. In Minahasa, the development of traditional music demonstrates the dynamic relationship between musical practices, cultural identity, and social change. Lopian and Mulyana (2019), for instance, found that Minahasan ethnic vocal music has interacted with Western popular music, resulting in changes to several traditional characteristics. This illustrates that traditional music is not a static cultural product but a living cultural practice that continuously responds to social and cultural transformations.

North Minahasa Regency is one of the regions in North Sulawesi with considerable cultural and traditional artistic richness. Its administrative center is located in Airmadidi, while its territory includes coastal areas, hills, and areas directly bordering the sea. The population is predominantly Minahasan, particularly the Tonsea sub-ethnic group, although other ethnic communities are also present. The interaction between geographical, environmental, and social conditions has contributed to the development of diverse local cultural expressions. Pangalila et al. (2024) identified several forms of traditional music in North Minahasa, including Kolintang, Bamboo music, Musik Bia, Tetengkoren, Oli, Tagonggong, and Sasesahang. The diversity of these musical forms demonstrates the importance of North Minahasa as a region for the preservation and development of traditional music in North Sulawesi.

One area with significant natural and cultural potential in North Minahasa is Likupang. The region is recognized for its coastal tourism potential, natural resources, and cultural practices maintained by local communities. The geographical and socioeconomic characteristics of Likupang are closely connected to the daily lives and livelihoods of its inhabitants (Badan Pusat Statistik Kabupaten Minahasa Utara, 2024). The close relationship between communities and the coastal environment has encouraged the development of cultural practices that utilize local natural resources. One such cultural expression is Musik Bia, a traditional musical form that developed in Batu Village, South Likupang District.

Musik Bia is distinctive because it uses sea shells or *bia* as musical instruments. The shells are collected from the marine environment, processed, and perforated to produce sound when blown. Differences in shell size, shape, and playing technique contribute to variations in their tonal characteristics. Consequently, Musik Bia represents not only the musical creativity of the

community but also its relationship with the natural environment. The transformation of marine resources into musical instruments demonstrates how local communities incorporate environmental resources into cultural expression and artistic practice.

The historical development of Musik Bia is closely connected to the social life of the Batu Village community. Kapoyos (2018) documented that Musik Bia has experienced changes in function, social significance, and the number and quality of performers over time. Initially, the shells were used as signaling instruments, particularly during the Japanese occupation as a means of warning communities about potential attacks. Around 1942, the shells were further developed into musical instruments with organized pitches through the efforts of Jefta Rare Rumimpunu and Dusaw Lenzun. Musik Bia subsequently developed from a practical communication medium into an ensemble-based musical performance. This historical transformation demonstrates the capacity of local communities to reinterpret available environmental resources into cultural and musical forms.

The transformation of Musik Bia also illustrates how traditional arts respond to changes in community life. Traditional music may change in function while retaining its cultural significance. A similar phenomenon can be observed in Kolintang music in North Minahasa. Windewani and Mistortoify (2022) demonstrated that social and religious changes influenced the functions of traditional music within the community. Thus, cultural sustainability should not necessarily be understood as maintaining a traditional art form in an entirely unchanged condition. Rather, sustainability may involve adaptation, reinterpretation, regeneration, and negotiation with changing social and cultural circumstances.

In contemporary community life, Musik Bia is performed in various contexts, including welcoming ceremonies, weddings, religious activities, rituals, cultural events, and tourism-related activities in Likupang. Its presence in tourism activities demonstrates its potential as both a cultural identity marker and a component of cultural tourism. Nevertheless, its sustainability remains a concern. Kapoyos (2018) reported a decline in the quantity and quality of Musik Bia performers and highlighted changing levels of community awareness toward the tradition. This situation indicates that the continued existence of a traditional art form does not automatically guarantee its sustainability across generations.

The challenges faced by Musik Bia are consistent with broader issues surrounding traditional music in Indonesia. Muhtar, Sunarmi, and Soewarlan (2024) emphasized that traditional music conservation requires concrete community involvement to maintain musical practices in everyday life. Similarly, Saputra et al. (2024) demonstrated that Digital Audio Workstation-based learning can increase young people's engagement with traditional music while supporting documentation, adaptation, and dissemination. These findings suggest that traditional music preservation needs to respond to technological developments and changing patterns of cultural participation among younger generations.

Recent studies further indicate that globalization, declining youth interest, limited documentation, and inadequate institutional support represent major challenges to the sustainability of traditional arts. Fikri and Samino (2025), in their study of the Beghu traditional musical instrument in Flores, identified inadequate documentation, declining youth interest, and limited institutional support as important challenges. Amalia, Shifa, and Fadilah (2025) similarly demonstrated that globalization can reduce young people's interest in traditional arts because of the increasing influence of popular culture. These conditions indicate that preservation should not only focus on maintaining artistic forms but also on creating opportunities for regeneration and ensuring the continued relevance of traditional arts within contemporary society.

Recent developments have increasingly emphasized digital technology and creative innovation as strategies for cultural preservation. Aryandari and Adenta (2025) demonstrated that the sustainability of Gamal music can be achieved through adaptation and negotiation between cultural heritage values and modernity. Likewise, Milady (2026) showed that musical

innovation and digital media can contribute to the reintroduction of traditional Osing songs to younger generations. Harliani, Fuad, and Machmud (2025) further emphasized the importance of cultural protection in the digital era, particularly concerning the utilization, protection, and sustainability of Indonesian traditional music. These studies indicate that preservation can involve documentation, education, innovation, performance, digital dissemination, and institutional support rather than merely reproducing traditional forms unchanged.

Despite previous research on Musik Bia, particularly Kapoyos (2018), which examined its functions and social realities, there remains a need for more comprehensive documentation of the tradition. Existing research has primarily addressed its social function and changing existence, whereas recent studies have generally focused on broader issues such as conservation, regeneration, education, digitalization, innovation, and cultural protection. Limited attention has been given to the interrelationship between the history, organology, sound production, musical processes, performance functions, sociocultural context, environmental relationship, and sustainability of Musik Bia in Batu Village. This constitutes an important research gap, particularly amid the rapid development of Likupang as a tourism destination.

Therefore, Musik Bia is important to investigate as a distinctive form of local cultural heritage in North Sulawesi. Its uniqueness lies not only in the use of sea shells as musical instruments but also in the knowledge, skills, history, social values, environmental relationships, and collective identity embedded in its practice. Studying Musik Bia can contribute to documenting cultural knowledge that may otherwise become vulnerable to loss as social conditions change. Moreover, systematic documentation can provide a foundation for educational, cultural, and preservation initiatives involving local communities and younger generations.

Based on these considerations, this study investigates Musik Bia in Batu Village, South Likupang District, North Minahasa Regency, with particular attention to its existence, historical development, characteristics, functions, uniqueness, and sustainability. The study is expected to contribute to the development of traditional music and ethnomusicological scholarship while providing academic documentation that can support local cultural preservation. More broadly, understanding Musik Bia as a living cultural practice may strengthen community awareness of the value of local heritage and encourage preservation strategies that remain relevant to contemporary social and cultural developments.

2. Theoretical Framework

To achieve the objectives of this study, a theoretical foundation is required as a basis for identifying, describing, and analyzing Bia Music as a form of cultural expression of the North Minahasa community. The conceptual framework of this study is constructed based on several interrelated perspectives, namely the musicological and ethnomusicological approaches, the theory of traditional music, the theory of musical functions, organology, music as cultural identity, and the theory of meaning and musical symbolism. The use of these perspectives enables the study not only to examine Bia Music from a musical perspective but also to understand its existence within the social and cultural life of the Batu Village community, Likupang, North Minahasa. Accordingly, the analysis focuses on three main aspects: the form or musical and organological characteristics, the socio-cultural functions, and the meaning and symbolism of Bia Music.

2.1 Musicological-Ethnomusicological Approach

The musicological approach is used to examine music based on its internal characteristics. This analysis includes musical form or structure, melody, rhythm, harmony, performance techniques, instruments, and other musical aspects. The musicological approach is important

in the study of Bia Music because it enables the researcher to systematically describe its musical characteristics based on observable and analyzable elements.

Meanwhile, ethnomusicology provides a broader perspective by placing music within the cultural context of the community that supports and practices it. Merriam (1964) explains that music is part of a cultural system that can be understood through the relationship among concepts about music, musical behavior, and musical sound. Thus, music is not merely viewed as a sonic product but as a human activity associated with the values, norms, beliefs, and social structures of a community. This perspective is relevant to understanding Bia Music because its existence cannot be separated from the social life of the community that maintains and practices it.

This perspective is further supported by Blacking (1973), who views music as *humanly organized sound*, namely sound organized by human beings and closely related to social life and cultural experience. Music can therefore function as a medium of communication, expression, social participation, ritual, and group identity formation. In this study, the musicological and ethnomusicological approaches are used complementarily: musicology is employed to analyze the form and musical characteristics of Bia Music, while ethnomusicology is used to understand the social and cultural context underlying the existence of Bia Music (Merriam, 1964; Blacking, 1973).

2.2 Theory of Traditional Music

Traditional music is a form of cultural expression that develops within a community and is transmitted from one generation to another. Traditional music does not merely preserve particular musical patterns but also carries the values, knowledge, experiences, and identity of the community that supports it. Merriam (1964) positions musical practices as part of culture; therefore, music needs to be understood through the relationship among sound, behavior, and the cultural concepts associated with it.

In the context of this study, Bia Music is understood as part of the cultural knowledge of the North Minahasa community, particularly knowledge related to the utilization of the natural environment, musical skills, and social practices. The use of shells or *bia* as a sound-producing medium demonstrates the relationship between humans, the natural environment, and culture. Therefore, Bia Music is not merely understood as a musical product but also as part of local knowledge transmitted and maintained by the community.

The study of traditional music also needs to consider the processes of transmission and continuity. Nettl (2015) explains that musical traditions constantly exist in a relationship between continuity and change. Traditions are not necessarily maintained in completely fixed forms but may undergo adaptations in response to changes within society. This perspective is important for examining how Bia Music is maintained, transmitted, practiced, and potentially transformed within the life of the Batu Village community, Likupang.

2.3 Theory of Musical Functions

The theory of musical functions is used to analyze the position and role of Bia Music in community life. Merriam (1964) distinguishes between the **uses** of music and the **functions** of music. The use of music refers to the situations in which music is employed in community life, whereas the function of music concerns the consequences or roles that music has for individuals and groups.

Merriam (1964) identifies ten functions of music: (1) emotional expression, (2) aesthetic enjoyment, (3) entertainment, (4) communication, (5) symbolic representation, (6) physical response, (7) reinforcement of social norms, (8) validation of social institutions and religious rituals, (9) cultural continuity, and (10) social integration. This framework can be used to identify the functions of Bia Music based on the actual musical practices of the Batu Village community.

In this study, the function of Bia Music is not limited to the practical use of the instrument but encompasses its broader role in social and cultural life. Bia Music can be examined in terms of its potential functions as a medium of communication, entertainment, emotional expression, accompaniment for social or ritual activities, cultural symbolism, a means of transmitting cultural values, and a medium of community integration. Thus, Merriam's theory of musical functions provides a foundation for explaining why Bia Music is used and what role its use plays for the community that supports it.

The concept of function also needs to be distinguished from meaning. Linton (1936) explains that cultural elements acquire particular positions based on their relationships with the broader cultural system of a society. Therefore, the function of a cultural element can be understood through its relationship with the needs, activities, and structures of community life, whereas its meaning concerns the values and interpretations attributed to that element by the community (Linton, 1936).

2.4 Theory of Musical Organology

Organology is used to analyze the Bia musical instrument based on its physical and musical characteristics. Organological analysis includes form, size, materials, instrument components, manufacturing processes, sound source, sound-production techniques, playing techniques, and instrument classification. This approach is important because the physical characteristics of an instrument are directly related to the characteristics of the sound it produces.

In the Hornbostel-Sachs classification of musical instruments, instruments are categorized according to their sound sources or methods of sound production. If the Bia instrument examined in this study consists of a shell played by blowing through a particular opening, causing the air inside the cavity to vibrate, it can be classified as an **aerophone**, particularly an instrument that produces sound through the vibration of an air column (Hornbostel & Sachs, 1961).

Organological aspects can also be related to the acoustic characteristics of the instrument. The size and shape of the cavity, the properties of the material, and the player's technique in producing and controlling airflow may influence the timbre, pitch, intensity, and overall sound characteristics of the instrument. Therefore, this study not only describes the physical form of the Bia instrument but also relates its organological characteristics to its playing technique and the characteristics of the sound produced.

2.5 Theory of Music as Cultural Identity

Music can serve as an important medium for the formation, maintenance, and representation of cultural identity. Stokes (1994) explains that music has the capacity to create and reinforce identity because musical practices are always associated with place, social groups, history, and shared experiences. Music can therefore serve as a marker that distinguishes one group from another while simultaneously strengthening a sense of belonging within a community.

In the context of Bia Music, the cultural identity perspective is used to examine how the Batu Village community perceives and positions Bia Music as part of its cultural heritage. The existence of Bia Music may demonstrate the relationship between the community, local history, the natural environment, and cultural experiences transmitted across generations.

The concept of *invented tradition* proposed by Hobsbawm and Ranger (1983) is also relevant for understanding how a tradition can be maintained, reconstructed, or reintroduced into community life to strengthen collective identity. However, this concept needs to be applied carefully because the existence of a tradition does not necessarily mean that the tradition was newly "invented." In this study, the concept is more appropriately used to examine the processes of revitalization and reproduction of Bia Music traditions within the

context of contemporary society.

2.6 Theory of Meaning and Musical Symbolism

The analysis of meaning and symbolism is used to understand the values embedded in Bia Music from the perspective of the community that supports it. Music may contain symbols related to history, beliefs, social relationships, the natural environment, and cultural identity. Therefore, the meaning of Bia Music cannot be determined solely from its sonic characteristics but needs to be explored through the experiences, understandings, and interpretations of the community that uses and maintains it.

Through his interpretive approach, Geertz (1973) emphasizes the importance of understanding culture as a system of symbols through which people assign meaning to their lives. The concept of thick description is used to understand cultural actions not merely based on what is directly observable but also by considering the context, background, values, and meanings attributed to those actions by the community. In this study, this approach enables the researcher to explain the meaning of Bia Music contextually based on the musical practices and experiences of the Batu Village community.

3. Method

This study employs a qualitative method with a descriptive approach. The qualitative method is used to understand social and cultural phenomena based on experiences, perspectives, and information obtained directly from informants and the research setting. Qualitative research positions the researcher as the primary instrument who interacts directly with data sources to obtain an in-depth understanding of the phenomenon under investigation (Moleong, 2017; Sugiyono, 2019). This approach was selected because the study focuses on the existence, characteristics, playing techniques, and social functions of Bia Music in the community of Batu Village, South Likupang District, North Minahasa Regency. Creswell and Poth (2018) explain that qualitative research is appropriate for exploring and understanding the meanings that individuals or groups assign to a particular social or cultural issue.

2.1 Data Collection Techniques

Data were collected through literature review, observation, interviews, and documentation. The data consisted of primary and secondary data. Primary data were obtained directly from informants and field situations through observation and interviews, while secondary data were obtained from books, scientific articles, documents, archives, and other written sources relevant to the research object (Sugiyono, 2019).

a. Literature Review

The literature review was conducted by identifying, reading, and examining various written sources related to Bia Music, traditional Minahasan music, the social functions of music, performing arts, and ethnomusicology. The literature review was used to establish a conceptual foundation and strengthen the interpretation of field data. The sources included *Musik Bia: Fungsi dan Realitas Sosial*, *Perubahan Musik Bia di Kabupaten Minahasa Utara*, *Identitas Musik Tradisional Minahasa: Kajian Instrumen Alam dan Fungsi Sosialnya*, *Pertumbuhan Seni Pertunjukan*, *Metodologi Penelitian Kualitatif*, and *The Study of Ethnomusicology*.

b. Observation

Observation was conducted through direct observation of the existence and activities of Bia Music within the community of Batu Village. The researcher observed community activities such as celebrations, festivals, traditional ceremonies, and religious activities in which Bia Music was performed. Observation was conducted to

obtain data concerning musical activities, the use of instruments, Bia Music playing techniques, and the social context in which Bia Music was performed. The research was conducted in Batu Village, South Likupang District, North Minahasa Regency, North Sulawesi Province. Direct observation enabled the researcher to obtain data based on the natural conditions of the research setting.

c. Documentation

Documentation was used as a supporting technique to complement the data obtained through observation and interviews. Documentation was conducted using a camera or mobile phone to record Bia Music performances, the physical forms of the instruments, performance processes, and community activities related to Bia Music. Documentation also served as a source of data that could be reviewed during the analysis stage, allowing the researcher to re-examine and compare field information with the results of observations and interviews.

d. Interviews

Interviews were conducted directly with informants who were considered knowledgeable and experienced in relation to Bia Music in Batu Village. The interviews were conducted to obtain information regarding the history of Bia Music, the process of making the instruments, techniques for playing and blowing the Bia, the distribution of sounds according to instrument size, and the social functions of Bia Music within the community.

One of the informants was Yano Tooy, a Bia Music player in Batu Village. Based on an interview conducted on November 9, 2025, it was found that Bia Music has long been practiced in Batu Village and is performed in various community activities, including church activities. The informant explained that Bia Music is performed collectively using several Bia sizes that produce different tonal characteristics. The smaller Bia produces a higher sound, the medium-sized Bia produces a middle-range sound, while the larger Bia produces a lower or bass sound (Tooy, interview, November 9, 2025).

An interview was also conducted with Wilhelmina Verranda Rottie, S.Pd., the Village Head of Batu Village. Based on the interview conducted on December 8, 2025, it was found that Bia Music remains actively used in various community activities in Batu Village and in church activities, including performances outside the village when the Bia Music group receives invitations. The village government supports the existence of Bia Music because it is considered an important part of the community's cultural heritage that needs to be maintained and preserved. The informant also explained that the existence of Bia Music is closely associated with community traditions, including *mapalus* (Rottie, interview, December 8, 2025).

2.2 Research Location and Time

The research was conducted in Batu Village, South Likupang District, North Minahasa Regency, North Sulawesi Province. The location was selected because Bia Music continues to exist and is performed in various community activities. The research was conducted during the academic semester break and was adjusted to the schedule of community activities involving Bia Music performances or its use in social and cultural events.

2.3 Data Analysis and Processing Techniques

Data analysis was conducted qualitatively from the data collection stage through the final stage of the research. Data obtained from observations, interviews, documentation, and literature reviews were first classified according to the research focus. The data were then

reduced by selecting information relevant to the existence, characteristics of the instruments, playing techniques, and social functions of Bia Music. The reduced data were subsequently presented in descriptive form so that the relationship between Bia Music and the social life of the community could be systematically understood. The final stage involved drawing conclusions based on patterns and findings identified across all data sources. The analysis process was conducted interactively and continuously throughout the research, allowing interpretations to be continuously examined against the field data (Sugiyono, 2019).

To enhance data validity, information obtained from interviews was compared with the results of observations, documentation, and literature sources. Cross-source comparison was conducted to ensure that information concerning the existence and functions of Bia Music was consistent with the conditions observed in the field. Thus, the analysis was not based solely on informants' statements but was also strengthened by direct observations and documentary evidence.

4. Results and Discussion

The findings of this study were obtained through observation, interviews, documentation, and examination of the Bia Music tradition in Batu Village, Likupang, North Minahasa. The findings indicate that Bia Music is not merely a traditional musical ensemble based on shell instruments but represents a cultural practice that encompasses historical experience, local knowledge, environmental adaptation, musical creativity, social interaction, and cultural identity. The analysis focuses on the origin and historical development of Bia Music, the organological characteristics of the instruments, the resulting sound characteristics, playing techniques, the process of instrument production and tuning, and the socio-cultural roles of Bia Music in the community. These findings support Merriam's (1964) view that music should be understood through the relationship among musical sound, musical behavior, and cultural concepts. Merriam's framework is particularly relevant because the existence of Bia Music in Batu Village cannot be separated from the historical experiences, social practices, and cultural meanings attached to the instrument and its performance.

4.1 The Origin and Historical Development of Bia Music

The origin of Bia Music in Batu Village is closely associated with the natural environment, local history, and the community's ability to transform naturally available resources into a cultural and musical practice. According to the field findings, Bia Music initially developed from the use of *bia*, or marine shells, as a signaling instrument. In approximately 1941, during the Japanese occupation, the sound of the shell was reportedly used as a warning signal when enemy aircraft were approaching the surrounding villages. Each hamlet would blow the shell continuously as a communal warning signal until the perceived threat had passed. This early use demonstrates that the function of Bia was initially not primarily aesthetic or entertainment-oriented but communicative and practical. Comparable uses of conch-shell trumpets have also been documented in other cultural contexts, where their loud and far-carrying sound made them effective signaling devices over long distances.

The transformation of Bia from a signaling device into a musical instrument represents an important stage in the cultural development of the tradition. Field information indicates that the early sounds produced by Bia were not yet organized into a regular tonal system. Around 1942, Jefta Rare Rumimpunu and Dusaw Lenzun, both remembered by the community as pioneers, makers, and trainers of Bia Music, began organizing the shells according to musical pitches. The development of the tonal system was reportedly inspired by an everyday acoustic experience: Jefta Rare observed the sound produced when raindrops fell onto empty cans placed beneath a roof gutter. This experience stimulated his experimentation with pitch and eventually led to the development of a diatonic tonal organization for the Bia ensemble. This process illustrates how local musical innovation can

emerge from ordinary environmental experiences and individual experimentation.

The establishment of the first Bia ensemble, reportedly named Mutiara, occurred in 1942. The ensemble initially consisted of eight players corresponding to an octave in the F tonal system and was later expanded to approximately sixteen players. The historical trajectory subsequently included performances during the Japanese occupation, a period of decline, and later revitalization. According to the historical account provided by the community, Bia Music experienced a period of disappearance until approximately 1968. A new generation subsequently reconstructed the ensemble in October 1969 under the guidance of Yefta Rumimpunu. In 1970, Bia Music was taken to Jakarta for a performance at Senayan, and on April 10, 1975, it was again brought to Jakarta as part of the North Sulawesi contingent for the opening of Taman Mini Indonesia Indah. Between approximately 1977 and 1983, the name Mutiara became less prominent, before the tradition was revitalized in 1984 under Hermanus Rumuat Tooy, a local arts teacher who had studied with Lodewik Manik and colleagues in Tomohon. At this stage, the tonal reference was reportedly changed from A as do to C as do. In 1998, Bia Music was registered with the arts and culture office in Kasuang, Tomohon, under the leadership of Bobby Sumendap (Richard, 2018).

This historical trajectory demonstrates that Bia Music has undergone a process of continuity, interruption, reconstruction, and adaptation. Such a trajectory corresponds to Nettl's (2015) argument that musical traditions are not necessarily static systems but are continuously negotiated between continuity and change. The transition from a warning signal to an organized musical ensemble, followed by periods of decline and revitalization, indicates that the continuity of Bia Music depends not only on the physical availability of shells but also on the knowledge, skills, memory, and commitment of successive generations. In this sense, the history of Bia Music represents a process of cultural transmission rather than merely the survival of an old musical instrument.

The environmental dimension is also significant. Pudi notes that Bia has become increasingly difficult to obtain as ecological degradation has affected the habitat of the shell species used for musical purposes. The decreasing availability of appropriate shells creates an additional challenge for the continuity of the tradition because the instrument depends directly on natural materials. This finding demonstrates the relationship between musical heritage and environmental sustainability. The loss of the natural resource may ultimately threaten not only the material production of the instrument but also the continuity of the associated knowledge and performance practices. Thus, Bia Music can be understood as an example of cultural knowledge embedded within an ecological context.

4.2 Organological Structure of Bia Music

The organological structure of Bia Music can be examined through the physical form, material, dimensions, construction, sound-producing mechanism, and functional differentiation of its instruments. The principal material is marine shell, although some contemporary instruments have been modified through the addition of plastic pipes, particularly PVC or similar tubing, and adhesive materials. From the perspective of the Hornbostel-Sachs classification, Bia belongs to the aerophone family because its sound is produced through the vibration of air. The Hornbostel-Sachs system classifies musical instruments according to their sound-producing mechanisms, with aerophones constituting instruments in which vibrating air is central to sound production.

The field findings indicate that several shell forms are used in Bia Music in North Minahasa. These include shells locally identified as *Bia Kepala Kambing* or helmet shell, associated in the field documentation with *Cassis cornuta*; *Bia Conch Ratu*; *Bia Helmet Raja*; and *Bia Triton* or trumpet shell. The specific shell selected influences the physical dimensions, resonance characteristics, and musical role of each instrument. This diversity demonstrates that the ensemble is not based on a single standardized shell type but on an organized

collection of shells with different physical characteristics and musical functions.

Before being converted into a musical instrument, the shell retains its natural morphology. A blowing hole is made at the appropriate end of the shell so that the player can excite the air column inside the cavity. As shown in Figure 1, the natural form of the helmet shell provides the basic resonating body of the instrument. The shell's spiral cavity becomes an important component in shaping the resulting sound. The transformation from natural shell to musical instrument therefore involves relatively limited alteration to the shell body while adding a functional opening for sound production.



Figure 1. Natural form of the helmet shell (*Cassis cornuta*) before being converted into a musical instrument (Photograph: Putri Gandawari, November 10, 2025)

The contemporary form of Bia has undergone further modification through the addition of a plastic tube at the blowing end. Figure 2 shows the modified Bia instrument equipped with a pipe used as a blowing extension. According to the performers, this modification makes the instrument easier to play because the tube provides a more manageable interface for directing airflow toward the resonating cavity.



Figure 2. Modified Bia instrument using a plastic pipe (Photograph: Putri Reina Gandawari, November 10, 2025)

In comparison with the traditional method of blowing directly into the shell opening, the modified design reduces the difficulty of positioning the lips precisely against the shell. The modification therefore represents a practical adaptation that facilitates performance while maintaining the shell as the primary resonating material. The Bia instruments used in Batu Village can be broadly differentiated into melodic and accompanying instruments.

a. Form of the Melodic Bia Instrument

The melodic Bia is represented by a smaller Triton-type shell. The instrument documented in the field has an approximate length of 25 cm and width of 10 cm and is generally played by one or two performers. The current tonal reference is C. According to the field measurements and playing observations, a melodic Bia can produce a range extending

across approximately two octaves depending on the player's embouchure and airflow control. c – c' (lowercase c – lower c'). When represented in musical notation: c – d – e – f – g – a – b – c' – d' – e' – f' – g' – a' – b' – c". Figure 3 illustrates the current form of the melodic Bia. Its musical role distinguishes it from the larger shell instruments that primarily provide lower or supporting tones.



Figure 3. Current form of the melodic Bia instrument (Photograph: Putri Reina Gandawari, November 9, 2025)

b. Form of the Accompanying Bia Instrument

The Bia instruments used as accompanying instruments in Bia Music consist of several types of seashell instruments, including the Helmet Bia, locally known as *Bia Kepala Kambing*, the Triton Bia or trumpet shell, and the Red-Mouthed Bia. Each type has a different physical size, acoustic characteristic, and pitch function within the ensemble. The variation in size and form of the shells contributes to the differentiation of their musical roles, particularly in producing low, middle, and accompanying pitches. In the Bia ensemble of Desa Batu, these instruments are not played individually but are combined to create an accompaniment texture that supports the melodic Bia. The use of different shell types demonstrates how naturally available materials are adapted and organized into a functional traditional musical ensemble.

One of the main accompanying instruments is the *Bia Kepala Kambing*, which measures approximately 35 cm in length and 20 cm in width. This instrument produces some of the lowest sounds in the Bia ensemble and is used in two registers, namely the bass overtone and contrabass. The contrabass Bia uses a C-based tonal system, with C functioning as *do*, and produces the notes t–y. Its low register provides a fundamental sonic layer in the ensemble and contributes to the depth of the overall sound. Meanwhile, the bass overtone Bia also uses C as *do* and produces the sequence of notes q–w–e–r–t–y–u–Q. Thus, the *Bia Kepala Kambing* has an important function in establishing the lower register of the ensemble through the use of different pitch ranges. The physical form of the contrabass Bia is presented in Figure 4, while the form of the bass overtone Bia is presented in Figure 5.



Figure 4. Form of the Bia contrabass (Photograph: Putri Reina Gandawari, November 9, 2025)

Another accompanying instrument is the Triton Bia, or trumpet shell, scientifically identified as *Charonia tritonis*. This instrument measures approximately 50 cm in length and 17 cm in width. In the Bia ensemble, the Triton Bia uses C as *do* and can produce different pitches depending on the particular instrument and the way it is played. One of the documented Triton Bia instruments produces the note q, while another instrument with the same general physical form produces the pitch represented in the documentation as qu. This variation demonstrates that individual Bia instruments may be assigned different pitches within the ensemble. The Triton Bia is therefore played by several musicians simultaneously, with each player contributing a particular pitch to form an accompanying musical texture. The form of the first Triton Bia is shown in Figure 6.



Figure 5. Bia bass/contrabass using a Triton or trumpet shell (Photograph: Putri Reina Gandawari, November 9, 2025)



Figure 6. Form of the Triton Bia (Photograph: Putri Reina Gandawari, November 9, 2025)

A second Triton Bia has a physical form similar to that shown in Figure 6 but differs in the pitch it produces. Based on the field documentation, this instrument produces the pitch represented as qw. The difference in pitch among instruments with similar physical forms indicates that the Bia ensemble is organized through the distribution of specific pitches among individual instruments. Each Bia consequently has a particular role within the ensemble rather than functioning as an independent melodic instrument. The form of this second Triton Bia is presented in Figure 7.



Figure 7. Another form of Triton Bia with a different pitch assignment (Photograph: Putri Reina Gandawari, November 9, 2025)

In addition to the larger shell instruments, the accompanying ensemble also uses a smaller *Bia Kepala Kambing*, locally associated with the Horned Helmet Shell and scientifically identified as *Cassis cornuta*. This instrument measures approximately 15 cm in length and 9 cm in width. Compared with the larger *Bia Kepala Kambing*, its smaller physical dimensions correspond to a different pitch function within the ensemble. Using C as *do*, this instrument produces the notes 2-3-4, corresponding to *re-mi-fa* in solfège. The use of these pitches enables the instrument to participate in the formation of the accompanying texture of Bia Music. The physical form of this instrument is shown in Figure 8.



Figure 8. Helmet shell or horned helmet shell (*Cassis cornuta*) (Photograph: Putri Reina Gandawari, November 9, 2025)

Another type of accompanying instrument is the Red-Mouthed Bia, scientifically identified as *Stramonita haemastoma*. This shell measures approximately 7 cm in length and 4 cm in width and functions specifically as an accompanying instrument. Unlike the larger Bia instruments, the Red-Mouthed Bia is distributed into several individual instruments, with each instrument assigned to a particular pitch. According to Om Tooy, one of the pioneers of Bia Music, the manner of playing this type of Bia resembles the playing style of *keroncong* music, particularly in its role as an accompanying instrument. In the C-based tonal system, with C as *do*, one Red-Mouthed Bia produces the note 3 (E), or *mi*. The form of this instrument is presented in Figure 9.

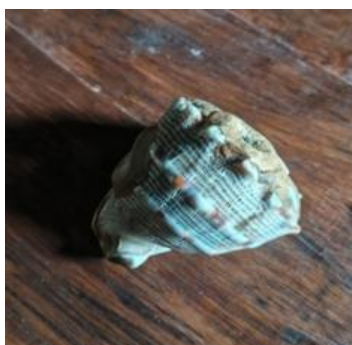


Figure 9. Bia Batu Bermulut Merah (*Stramonita haemastoma*) used as an accompanying instrument (Photograph: Putri Reina Gandawari, November 9, 2025)

Other Red-Mouthed Bia instruments are assigned different pitches within the same C-based tonal system. One instrument produces the notes 5 (G) and 6 (A), corresponding to *sol* and *la*. The division of pitches among individual shell instruments allows several Red-Mouthed Bia players to perform complementary parts simultaneously. In this way, the individual shells function collectively as an accompanying section within the Bia ensemble. The physical form of the Red-Mouthed Bia used for these pitches is presented in Figure 10.



Figure 10. Form of the Red-Mouthed Bia Shell or *Stramonita haemastoma* (Photograph: Putri Reina Gandawari, November 9, 2025)

The Red-Mouthed Bia is also used to produce the tonic pitch of the ensemble. Based on the field documentation, another instrument uses C as *do* and produces the note 1 (C). This instrument therefore occupies the tonic position within the accompanying section and contributes to establishing the tonal center of the ensemble. The distribution of individual pitches among the Red-Mouthed Bia demonstrates that the ensemble is constructed through the collective interaction of several shell instruments, each of which contributes a specific pitch. The form of the Red-Mouthed Bia producing the tonic note is shown in Figure 11.



Figure 11. *Bia Batu Bermulut Merah* used as an accompanying instrument with a C pitch assignment
(Photograph: Putri Reina Gandawari, November 9, 2025)

The accompanying Bia instruments in Desa Batu demonstrate a systematic relationship between the physical characteristics of the shells, their pitch distribution, and their musical functions within the ensemble. The larger shells, such as the *Bia Kepala Kambing* and *Charonia tritonis*, are primarily associated with lower or supporting registers, whereas smaller shells such as *Cassis cornuta* and *Stramonita haemastoma* contribute specific pitches to the accompaniment. The documented pitches – t-y for the contrabass, q-w-e-r-t-y-u-Q for the bass overtone, q, qu, and qw for different Triton Bia instruments, 2-3-4 for the smaller *Bia Kepala Kambing*, and 3 (E), 5 (G), 6 (A), and 1 (C) for the Red-Mouthed Bia – illustrate the division of musical roles among individual instruments. This organization reflects the adaptation of natural shell materials into a collective musical system in which differences in size, construction, and pitch are integrated into the performance practice of Bia Music.

4.3 Sound Characteristics of Bia Music

The sound characteristics of Bia Music are strongly influenced by the material and morphology of the shell, the dimensions of the resonating cavity, and the player's technique. The field observations indicate that Bia produces a deep, resonant, slightly rough, and buzzing quality of sound. The natural irregularities of the shell cavity contribute to the distinctive timbre of the instrument, while the resonating cavity amplifies the initial excitation generated by the player's lips and airflow. The result is a sound that is clearly distinguishable from that of manufactured brass or woodwind instruments.

Timbre is therefore one of the most important identifying characteristics of Bia Music. The sound is perceived as resonant and somewhat rough, with a strong sense of natural reverberation. The characteristics of the shell itself are integral to this timbre because the instrument retains its natural resonating body. In this respect, the sound of Bia demonstrates how the physical characteristics of an instrument become inseparable from its cultural identity.

Pitch in Bia Music is affected by airflow and the player's embouchure. The field findings indicate that stronger airflow can increase the perceived pitch and intensity of the sound, while weaker airflow produces a softer and generally lower sound. This explains why achieving stable intonation requires considerable control from the performer. The pitch of individual shells is also associated with their physical dimensions, with larger shells generally

producing lower tones and smaller shells producing higher tones. Nevertheless, this relationship should be understood as a tendency rather than an absolute rule because the resulting pitch is also affected by the shell's internal morphology and the player's technique.

The duration of the sound depends primarily on the duration of the player's airflow and the musical value being performed. The contour of Bia sound is relatively simple in comparison with instruments capable of extensive melodic ornamentation. A sustained tone may remain relatively stable when the airflow is maintained consistently, while changes in blowing pressure may produce variations in intensity and pitch. These characteristics demonstrate that the musical expressiveness of Bia is strongly dependent on the performer's control of breath rather than on a complex mechanical system.

The findings are consistent with the Hornbostel-Sachs conception of aerophones, in which sound production depends on vibrating air. The shell functions as a resonating body containing and shaping the vibrating air rather than producing the primary sound through a vibrating membrane or string. Consequently, the interaction between shell cavity, airflow, lip vibration, and performer control is central to the acoustic identity of Bia.

4.4 Playing Techniques

Playing technique is a fundamental component of Bia Music because the instrument has no mechanical fingering system comparable to many modern wind instruments. The quality and stability of the sound depend substantially on how the performer holds the shell, positions the mouth, and controls airflow.

The first aspect is the technique of holding the instrument. Field observations indicate that the left hand generally supports the spiral body of the Bia, while the right hand stabilizes the area near the blowing opening. The hands must not obstruct the resonating cavity. Figures 11 and 12 illustrate these two hand positions. Stable handling is important because movement of the shell may alter the position of the blowing opening relative to the player's lips and consequently affect the stability of the sound.



Figure 11. Left-hand position supporting the body of the Bia (Photograph: Putri Reina Gandawari, November 9, 2025)



Figure 12. Right-hand position near the blowing opening for stabilization (Photograph: Putri Reina Gandawari, November 9, 2025)

The second aspect is the blowing technique. The player forms the lips in a manner comparable to brass-instrument embouchure, with the blowing opening positioned between the lips rather than directly against the teeth. The airflow is initiated with controlled pressure, and performers describe the articulation as resembling the pronunciation of "tu" rather than "fu." This technique produces a more focused attack and helps stabilize the initial sound. The

relationship between embouchure and sound production is especially important because the Bia relies directly on the player's airflow and lip control.

Air pressure is also an essential determinant of the resulting sound. Stronger pressure tends to produce a louder and potentially higher sound, whereas softer pressure produces a quieter and potentially lower sound. Consequently, the performer must regulate airflow carefully to maintain pitch and dynamic stability. Figure 13 illustrates the blowing technique used in Bia performance.



Figure 13. Blowing technique for playing Bia Music (Source: Indonesian Ministry of Education and Culture cultural heritage documentation, April 11, 2026)

The dependence on performer technique explains why Bia Music cannot be reduced to the physical characteristics of the shell alone. The instrument provides the acoustic potential, but the performer transforms that potential into musical sound. This finding is consistent with Merriam's (1964) emphasis on musical behavior as an essential component of the study of music. In Bia Music, the interaction between instrument, performer, and musical context constitutes an integrated cultural practice rather than an isolated instrumental technique.

4.5 Production and Tuning of Bia Instruments

The production of Bia instruments involves a sequence of processes requiring material selection, cleaning, modification, and tuning. According to Pudi, the production process also embodies values of patience, precision, and persistence because the natural material requires careful handling and the final pitch cannot always be obtained through standardized mechanical measurements alone. The production process generally involves five stages: selecting the shell, removing and cleaning its contents, creating the blowing or pitch holes, tuning the holes, and completing the physical and tonal finishing.

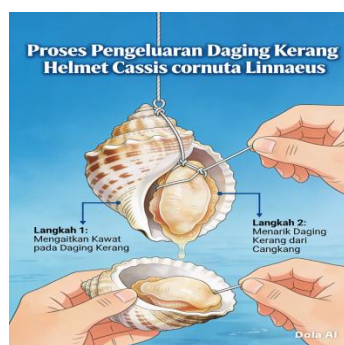


Figure 14. Illustration of the process of removing the flesh from the Bia shell (AI-generated illustration, April 10, 2026)

Figure 14 illustrates the process of removing the organic material from the shell. The first stage is shell selection. The shell must possess an appropriate physical form and sufficient

structural integrity to withstand modification. After selection, the flesh and organic material inside the shell are removed. According to the field account, the shell is suspended using wire attached to the remaining flesh and then cleaned after the internal material has been removed. The empty shell is subsequently buried in soil for approximately three days to reduce remaining organic matter and odor. It is then washed with soap or another cleaning material that does not contain oil or alcohol, with the purpose of preserving the shell's natural appearance and aesthetic quality.

The next stage involves making the required holes. Field documentation indicates that a hammer and concrete nail or similar metal tool may be used to create the holes. The process requires considerable care because excessive force can damage the shell. After the initial opening is created, a metal tool is used to clean and enlarge the hole. Figures 15–17 illustrate the stages of making and completing the holes.



Figure 15. Process of making holes in Bia using a hammer (Source: screenshot from the Burung Hantu YouTube channel, April 11, 2026)



Figure 16. Process of making holes in Bia using a metal tool (Source: screenshot from the Burung Hantu YouTube channel, April 11, 2026)



Figure 17. Bia after the holes have been made (Source: screenshot from the Burung Hantu YouTube channel, April 11, 2026)

Tuning is carried out simultaneously with the formation and adjustment of the holes. According to the field findings, the craftsmen do not rely exclusively on theoretical calculations but use comparison with instruments that provide standardized reference pitches, such as a piano keyboard, pianika, tuning flute, or tuning fork. The shell is repeatedly blown and compared with the reference pitch. The size and position of the opening are adjusted until the resulting pitch approximates the intended standard. This process requires repeated testing and careful listening.

The difficulty of achieving stable intonation is one of the distinctive characteristics of Bia Music. Because the sound is strongly affected by the player's blowing pressure, the same shell may produce slight variations in pitch depending on performance conditions. This means that tuning the instrument alone is insufficient to ensure ensemble intonation. Players must also develop stable breath control through repeated practice. Ensemble rehearsal is therefore important not only for musical coordination but also for developing the ability of performers

to adjust their pitch collectively.

The tuning process demonstrates the interaction between material culture and embodied musical knowledge. The craftsmen must understand the physical properties of the shell, while the players must understand how airflow affects pitch. The production and performance of Bia therefore involve forms of local knowledge that are transmitted through practice and experience. Such knowledge constitutes an important component of intangible cultural heritage because it includes skills that cannot be fully preserved merely through the physical preservation of the instrument.

4.6 The Role of Bia Music in the Life of the Batu Village Community

In Batu Village, Bia Music is performed on various occasions, including community celebrations, welcoming guests, village events, religious activities, and cultural festivals. The findings indicate that its role extends beyond entertainment. Bia Music functions as a medium of social interaction, cultural transmission, education, and collective identity. This multidimensional role is consistent with Merriam's (1964) concept of musical functions, particularly communication, social integration, cultural continuity, symbolic representation, and the reinforcement of social relationships. Merriam's work explicitly treats music as social behavior and includes a dedicated discussion of "Uses and Functions" as well as "Music as Symbolic Behavior."

One important role of Bia Music is strengthening social relationships among residents. Training and performance require coordination among players, mutual listening, cooperation, and collective responsibility. Children, adolescents, and adults may participate in rehearsals and performances, creating opportunities for intergenerational interaction. Through this process, musical practice becomes a social space in which knowledge and skills are exchanged while relationships among community members are strengthened. Figure 18 illustrates the use of Bia Music in a public community event, namely the 21st anniversary of SMP Negeri Likupang Selatan.



Figure 18. Bia Music performance at the 21st anniversary celebration of SMP Negeri Likupang Selatan (Source: mediamanado.com, March 16, 2026)

The role of Bia Music as a social integrator can also be understood through the collective discipline required in ensemble performance. Because different shells are assigned to different pitches, performers must listen to one another and coordinate their entrances, duration, dynamics, and intonation. The resulting musical cohesion depends upon social cohesion among the performers. This finding corresponds to Merriam's (1964) conception of music as a social practice whose functions extend beyond the production of sound.

Bia Music also plays an important role in maintaining cultural identity. The community continues to present Bia Music in village events, religious activities, cultural festivals, fruit festivals, and the Likupang Tourism Festival. These performances provide visible representations of local cultural heritage and allow community members to associate the

sound and appearance of Bia with their collective identity. Stokes (1994) emphasizes that music can participate in the construction of place and identity because musical practices are closely connected with social groups, locality, and shared experience. The role of music in constructing and maintaining collective identity has also been emphasized in recent research on traditional music in Indonesia.

The documentation of Bia performances at cultural and religious events further demonstrates that the tradition has moved beyond its historical signaling function and become a symbolic representation of the community. Figures 19–21 show Bia Music in different contemporary performance contexts, including a fruit festival, a church praise activity, and the Likupang Tourism Festival.



Figure 19. Bia Music performance at a fruit festival (Source: Facebook account of Yolenda Rawung Damolawan, February 24, 2019)



Figure 20. Bia Music performance during a church praise activity (Source: YouTube channel Jeniver Juwita Sundalantie, March 11, 2022)



Figure 21. Bia Music performance at the Likupang Tourism Festival (Source: YouTube channel Olivia Jupe Derry, June 2, 2022)

The diversity of performance contexts indicates that Bia Music has acquired multiple layers of meaning. In religious contexts, it becomes part of collective worship and community expression; in village celebrations, it functions as entertainment and social participation; and in tourism and cultural festivals, it represents local heritage to audiences beyond the immediate community. This demonstrates that the function of Bia Music changes according to context while its cultural identity remains recognizable. Such contextual flexibility is consistent with the ethnomusicological understanding that music derives meaning from the social situations in which it is practiced.

The role of Bia Music in cultural transmission is particularly significant. The involvement of children and young people in learning to play Bia provides a mechanism through which instrumental knowledge, performance techniques, and cultural narratives can be transmitted to younger generations. This process reflects the broader function of traditional music as a means of cultural continuity. Nettl (2015) emphasizes the importance of understanding musical traditions as dynamic processes in which knowledge is continually transmitted and transformed. Therefore, the continuation of Bia Music should not be measured solely by the

survival of the original instruments but also by the community's capacity to reproduce the knowledge and practices associated with them.

The identity dimension of Bia Music can also be understood through Stokes's (1994) perspective that music participates in the construction of place and identity. The continued presentation of Bia Music in Batu Village and at events outside the village enables the community to represent itself through a distinctive local sound. This is particularly important because the instrument is made from locally meaningful natural materials and is connected to a specific historical experience. Bia Music thus becomes a sonic marker of locality: it communicates not only musical information but also a sense of belonging to Batu and North Minahasa.

At the symbolic level, the meaning of Bia Music cannot be separated from the historical and social experiences attached to it. Its historical role as a warning signal, subsequent transformation into an ensemble, periods of decline, revitalization, and contemporary presentation collectively contribute to its symbolic significance. Geertz's (1973) interpretive approach is useful in this context because cultural practices must be understood in relation to the meanings communities attach to them rather than merely through their observable physical characteristics. *Thick description* therefore enables Bia Music to be interpreted as a cultural practice involving history, environment, social relations, memory, and identity rather than simply as an ensemble of shell instruments.

Overall, the findings demonstrate that Bia Music in Batu Village has undergone a transformation from a practical signaling medium into a complex cultural practice. Its contemporary functions include musical performance, social communication, community integration, cultural education, heritage transmission, religious participation, and cultural representation. The transformation does not eliminate its historical identity; instead, the historical experience becomes part of the cultural meaning through which the community understands and maintains the tradition.

5. Discussion

The findings can be synthesized through three interconnected dimensions: musical-organological characteristics, socio-cultural functions, and cultural meaning. From the musical-organological perspective, Bia Music demonstrates a distinctive adaptation of naturally occurring shell materials into an organized aerophone ensemble. The physical differences among shells are transformed into musical differentiation through pitch assignment and ensemble organization. The use of different shell sizes, forms, and modified blowing mechanisms demonstrates that organological characteristics are directly related to musical practice.

From the socio-cultural perspective, the history of Bia Music illustrates how a musical practice can respond to changing community needs. Its initial function as a warning signal reflects the practical role of sound in community communication. Its later transformation into an organized ensemble demonstrates creative adaptation, while its contemporary use in festivals, religious activities, and community celebrations demonstrates the expansion of its social functions. This supports Merriam's (1964) argument that music should be studied not only through its sound but also through the behaviors and cultural concepts surrounding it.

From the cultural-identity perspective, Bia Music serves as a marker of locality and collective memory. The community's continued efforts to teach, practice, perform, and present Bia Music demonstrate that cultural continuity depends on active participation rather than passive preservation. Contemporary studies of traditional music in Indonesia similarly show that traditional musical practices can function simultaneously as aesthetic expressions, mechanisms of intergenerational transmission, and instruments for strengthening cultural identity.

The findings also reveal an important relationship between cultural heritage and

environmental sustainability. Because Bia instruments depend on naturally occurring shells, ecological degradation may directly affect the availability of the material required for instrument production. Consequently, preserving Bia Music requires more than maintaining performances; it also requires awareness of the ecological conditions that sustain the raw materials of the instrument. The preservation of Bia Music should therefore be understood as an integrated process involving musical knowledge, craftsmanship, performer training, historical memory, cultural participation, and environmental awareness.

In this regard, Bia Music can be conceptualized as a form of living cultural heritage. It continues to exist because community members actively reproduce its sounds, techniques, instruments, historical narratives, and social functions. Its continuity is not based on maintaining an absolutely unchanged form but on the community's ability to adapt the tradition while preserving its cultural significance. This interpretation is consistent with Nettl's (2015) understanding of musical traditions as dynamic systems and with Stokes's (1994) argument concerning the relationship between music, place, and identity.

Thus, Bia Music in Batu Village should not be understood merely as an ensemble of shell instruments. It constitutes a cultural system in which natural resources provide the material foundation, craftsmanship produces the instruments, performers generate the musical sound, community activities provide the social context, and collective memory gives the practice its cultural meaning. The interaction of these dimensions explains why Bia Music remains significant to the people of Batu Village and why its preservation requires both musical and socio-cultural approaches.

6. Conclusion

This study concludes that Bia Music in Batu Village, South Likupang District, North Minahasa Regency, is a distinctive traditional music form that reflects the relationship between the community, natural environment, historical experience, and cultural identity. Originally used as a signaling instrument, Bia developed into an organized musical ensemble and is now performed in social, religious, cultural, educational, and tourism contexts.

Organologically, Bia is classified as an aerophone because its sound is produced through airflow and vibration within natural seashell cavities. Instruments such as the *Bia Kepala Kambing*, Triton Bia (*Charonia tritonis*), *Cassis cornuta*, and Red-Mouthed Bia (*Stramonita haemastoma*) have different sizes, forms, pitch characteristics, and musical functions. Sound production is influenced by shell morphology, cavity size, embouchure, and blowing pressure, while playing requires embodied skills in holding, lip positioning, airflow control, and articulation.

The production and tuning of Bia involve shell selection, cleaning, modification, hole-making, finishing, and adjustment based on local experiential knowledge. This knowledge, together with performance techniques, represents important intangible cultural heritage that must be transmitted across generations.

Beyond its historical signaling function, Bia Music currently serves entertainment, religious and social activities, education, cultural transmission, community interaction, and the representation of local identity. However, its sustainability is challenged by declining shell availability, environmental degradation, and the need for performer regeneration. Therefore, preserving Bia as living cultural heritage requires an integrated approach involving intergenerational transmission, documentation, cultural education, community participation, institutional support, artistic development, and environmental conservation.

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Conflict of Interest

The authors declare that there is no conflict of interest related to this research or its publication.

Authors' Contribution

All authors contributed to the study as follows:

Sri Sunarmi: Conceptualization, Investigation, Methodology, Data curation, Formal analysis, Visualization, Writing – original draft, Writing – review & editing.

R. A. Dinar Sri Hartati: Supervision, Validation, Methodology, Formal analysis, and Writing – review & editing.

Putri Reina Gandawari: Investigation, Data curation, Documentation, Visualization, and Writing – review & editing.

Statement of the Use of AI

Artificial intelligence (AI) was not used to analyze, process, or interpret the research data. AI tools were used to assist with editing and improving the English language of the manuscript.

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