

Revitalizing the *Pratuokng*: Innovation, Authenticity, and Cultural Transmission Among the Bidayuh of Annah Rais

Alexander Chelum,^{a,*} Laura Prati Tutom,^a Sinin Hamdan,^b and Aaliyawani Ezzerin Sinin^c

This communication examines the revitalization of the *pratuokng*, a traditional Bidayuh bamboo tube zither from Annah Rais, Sarawak, through a qualitative ethnographic case study. A *pratuokng* is an idiochord tube zither, a musical instrument consisting of one drum and seven strings. Data were collected through interviews with cultural practitioner Arthur Borman, observation of teaching and performance contexts, and review of relevant ethnomusicological literature. The study analyzes how instrument knowledge, tuning practices, and performance techniques are transmitted and adapted in response to contemporary social change and strategies used in encouraging younger generations to performed with *pratuokng*. Particular attention is given to Borman's innovations in instrument configuration and musical range, and to how these developments generate debate regarding authenticity, legitimacy, and cultural authority. Previously published acoustic data are referenced to contextualize sound behavior; however, the analytic focus of this paper remains interpretive rather than experimental. Theoretically, the study contributes to discussions on cultural sustainability by framing tradition as a negotiated, evolving process rather than a fixed object. Findings indicate that context-sensitive innovation, community-based pedagogy, and selective global exposure can support continuity of endangered musical heritage while maintaining cultural integrity.

DOI: 10.15376/biores.21.4.10224-10231

Keywords: *Pratuokng*; *Bidayuh*; *Ethnomusicology*; *Musical innovation*; *Authenticity*; *Cultural sustainability*

Contact information: a: Faculty of Applied and Creative Art, Universiti Malaysia Sarawak, 94300 UNIMAS, Kota Samarahan, Sarawak, Malaysia; b: Faculty of Engineering, Universiti Malaysia Sarawak, 94300 UNIMAS, Kota Samarahan, Sarawak, Malaysia; c: Department of Science and Technology, Faculty of Humanities, Management and Science Universiti Putra Malaysia Bintulu Campus, 97008 Bintulu, Sarawak, Malaysia; *Corresponding author: calexander@unimas.my

INTRODUCTION

Traditional music functions as a vehicle for identity, memory, and cultural continuity (Merriam 1964; Titon 2009). Within the Bidayuh community of Annah Rais, the *pratuokng*, an idiochord bamboo tube zither (von Hornbostel and Sachs 1914; Hamdan *et al.* 2024), has historically accompanied ritual, communal, and narrative practices (Shelford 1916; Jähnichen 2012). However, rapid social change, urban migration, and the dominance of digital media have weakened intergenerational knowledge transfer. This article examines the revitalization of the *pratuokng* through a qualitative, interview-based ethnographic study centered on Arthur Borman. Rather than reporting experimental testing, the paper focuses on how knowledge is transmitted, adapted, and negotiated. In examining revitalization, the analysis focuses on the relationships among instrument structure and

configuration, tuning practices and playing techniques, approaches to pedagogy and youth training, and the wider debates surrounding innovation, legitimacy, and authenticity.

The *pratuokng* may be performed solo or in small ensembles, with each instrument producing a distinct timbre. In performance contexts, two to four instruments are often combined to create basic harmonic textures, sometimes accompanied by the Gaduok (wooden hand drum). Historically, the instrument has been associated with welcoming ceremonies, healing practices, devotional expression, and the accompaniment of oral narratives. For example, elders recalled its use to welcome visiting guests to the longhouse and to accompany reflective healing sessions in which music provided a calm and meditative atmosphere. According to Borman, several traditional repertoires remain in circulation and continue to be taught to younger players, illustrating both continuity and adaptation within performance practice (Borman 2025). Figure 1 presents the organological layout of the instrument. In this study, the bamboo tube effective length was 60 cm (node to node), although the total instrument length was 77 cm with the tube fully hollow. The wooden mallet was 21 cm long. Five strings were actually produced from the bamboo's culm. A middle peg splits two strings into two parts, which add up to seven strings. The two strings, referred to as strings no. 3 and no. 4, are split into strings 3A and 3B and strings 4A and 4B, respectively. A wooden mallet is used to struck the strings. The strings are carved from the bamboo's outer surface and raised using small bridges. Tuning is achieved by shifting these supports, altering both tension and vibrating length. The schematic also shows the interaction between the strings and drum section, highlighting the role of the bamboo body as resonator (Musib 2014). Within this framework, the study considers how knowledge of the *pratuokng* is transmitted, how structural and musical innovations shape debates around authenticity, and how revitalization strategies may sustain heritage while remaining rooted in local community values.



Fig. 1. (a) Bamboo tube with strings arranged in pentatonic tones (b) The schematic diagram of the bamboo tube with the strings and drum

FIELD STUDIES

This section describes the instrument construction, materials, and tuning practices as observed during fieldwork, supplemented by oral explanations provided by Borman (Barz and Cooley 2008; Borman 2025). The intention is not to report laboratory measurements, but to document the practical knowledge that underlies how the *pratuokng* is built, tuned, and prepared for performance. The *pratuokng* is constructed from a single length of mature bamboo selected according to diameter, wall thickness, and the position of natural nodes. Mature stems are preferred because younger bamboo is more prone to

cracking and produces less stable tone quality. After cutting, the bamboo is left to dry slowly in a shaded and well-ventilated space, allowing moisture to dissipate without creating structural stress that might weaken the tube or dull resonance (Wu 1995).

The internal cavity remains largely hollow, while the nodes are intentionally retained to act as a resonating barrier. Five strings with width and thickness approximately 2 mm and 1 mm respectively are carved directly from the outer bamboo surface and gently raised using small wooden bridges positioned along the tube. The stability of the bridges, the height of the supports, and the evenness of the carved strings determine both tone color and responsiveness during playing. During tuning, Borman listens for relational intervals rather than fixed frequencies, adjusting gradually until the pitches conform to the intended melodic framework used in performance. Figure 2 illustrates two key aspects. Figure 2a shows the bamboo tube prior to full assembly, highlighting the relationship between the natural nodes and the string layout. Figure 2b shows Borman demonstrating how tuning is accomplished by shifting the bridges to modify string tension and vibrating length. Tuning is therefore an adaptive, iterative process guided by listening, rather than by fixed frequency standards.



Fig. 2. (a) Bamboo tube for the *Pratuokng* making; and (b) Borman demonstrate the tuning of the string

RESULTS AND DISCUSSION

This section integrates field observations, interview insights, and a previously published acoustic reference (Hamdan *et al.* 2024). The aim is to illuminate how innovation, performance practice, and sound behavior intersect in the revitalization of the pratuokng. The focus is interpretive: acoustic figures are used to contextualize listening

experiences rather than to claim new laboratory results. Table 1 presents the fundamental frequencies (f_0) and partials associated with selected strings and the drum.

Table 1. The Fundamental f_0 , First (f_1), and Second (f_2) Partial for String 1 Through 5 and the Drum

	f_0	f_1	f_1/f_0	f_2	f_2/f_0	Pitches from FFT
String 1	320(E4)	640	2	-	-	E4
String 2	300(D4)	630	2.1	770	2.56	D4
String 3A	350(F4)	710	2.02	840	2.4	F4
String 3B	410(Ab4)	840	2.04	-	-	Ab4
String 4A	490(B4)	950	1.93	-	-	B4
String 4B	470(A#4)	520	1.1	-	-	A#4
String 5	500(B4)	530	1.06	-	-	B4
Drum	210(A3)	400	1.90	500	2.38	A3

Note: FFT Stands for Fast Fourier Transform

From an acoustical standpoint, the observed ratios between f_0 and the first two partials indicate differences in stiffness, bridge pressure, and effective vibrating length. Strings with partials approximating simple integer ratios (for example, 2:1 or 2.02:1) tend to behave more like lightly damped oscillators, producing clearer pitch perception and longer sustain. By contrast, strings or drum tones exhibiting irregular or compressed ratios demonstrate greater inharmonicity, resulting in timbres that are more percussive and less pitch-centered. These findings align with organological expectations for idiochord instruments, where the material continuity between string and resonator increases sensitivity to micro-adjustments in carving depth and bridge elevation. In addition, differences in decay envelopes were consistently heard during field observation: higher strings exhibited a slower amplitude decay curve, whereas the drum produced a rapid transient followed by fast attenuation. Taken together, these parameters help explain why the drum functions musically as a rhythmic anchor rather than a melodic partner, while the strings carry the melodic line.

In performance settings observed during fieldwork, these characteristics are not treated as mechanical data but as expressive resources. Borman describes tuning as a process of shaping relational pitch and tone color so that the instrument integrates effectively within a group of two to four *pratuokng*. Rather than striving for identical pitch across instruments, subtle variation is intentionally preserved, producing layered textures that enable harmonic support without eliminating the individuality of each instrument. These observations help explain the rationale behind Borman's innovations. Extending the instrument's pitch possibilities is not merely an expansion of notes; it is a recalibration of the instrument's acoustic affordances. Additional strings increase the number of stable harmonic nodes available to the player, while modified bridge positions redistribute tension in ways that maintain the characteristic timbre of bamboo. From an ethnomusicological perspective, this reflects what Kartomi (1990) describes as the cultural negotiation of instrument categories, in which structural adaptation remains legitimate so long as symbolic meaning and sonic identity are preserved. Likewise, Nettle's (2005) notion that tradition is a process rather than a fixed object is evident here: change is incorporated through practice, pedagogy, and consensus-building rather than through rupture.

Community responses illustrate these dynamics. Some elders caution against altering inherited form, grounding their concern in ideas of ancestral continuity. Others acknowledge that without context-sensitive adaptation, the instrument risks marginalization. Instead of a binary between preservation and change, what emerges is an ongoing negotiation over sound, identity, and authority. Taken together, the results suggest that *pratuokng* revitalization is driven less by standardization and more by negotiated adaptation. Acoustic reference data provide insight into how sound behaves, while ethnographic observation reveals how musicians interpret, adjust, and assign meaning to these sonic possibilities in everyday performance.

Global Influence and Re-Appreciation Strategies

The revitalization of the *pratuokng* does not unfold solely within the boundaries of Annah Rais. Exposure to regional and international platforms has reshaped how the instrument is perceived inside and outside the community. Events such as world music festivals (<https://www.auralarchipelago.com/auralarchipelago/talempongbotuang>) and intercultural showcases have positioned the *pratuokng* within a wider musical economy, in which recognition from external audiences often feeds back into local forms of pride and validation (Yampolsky 1995). For Borman, performing beyond the village functions as a strategic cultural intervention. International visibility allows the instrument to be reframed not as an antiquated relic, but as a living, adaptable art form capable of dialogue with other musical traditions. This reframing supports what ethnomusicologists describe as processes of recontextualization, where performance in new settings generates renewed meanings without necessarily erasing local significance.

Digital circulation further extends this impact. Documented performances and instructional videos shared online enable broader access, providing reference material for learners while simultaneously archiving practice that might otherwise disappear (Borman 2013; Seeger 2004). Importantly, these digital traces facilitate a renewed sense of ownership among younger Bidayuh, who encounter their heritage through contemporary media formats that feel familiar and accessible (Chan 2018). At the same time, global attention introduces tensions. Increased visibility raises questions concerning representation, commercialization, and the risks of aesthetic simplification for tourist consumption (Zemp 1996). Borman navigates these concerns by foregrounding community-based learning, ensuring that public performance remains anchored to local values and to the ethical responsibility of carrying a communal heritage. In this sense, international exposure operates not as an end in itself, but as a catalyst that strengthens internal appreciation, stimulates intergenerational dialogue, and encourages sustained participation in *pratuokng* practice.

CONCLUSIONS

1. The revitalization of the *pratuokng* demonstrates that preservation of musical heritage is not achieved through the maintenance of fixed, unchanging forms, but through processes of informed adaptation. The case of Arthur Borman shows how individual

agency, community trust, and reflective engagement with tradition can transform a fragile musical practice into a dynamic field of cultural negotiation.

2. Structural modifications, expanded pitch resources, and evolving pedagogical approaches illustrate that innovation can coexist with continuity when guided by cultural responsibility and collective dialogue. Rather than viewing acoustic properties, instrument design, and performance practice as separate domains, this study has shown that they operate as an integrated system.
3. Decisions regarding tuning, carving, and construction are inseparable from questions of meaning, identity, and legitimacy. By situating acoustic reference data alongside ethnographic observation, the paper underscores that sound is both a physical phenomenon and a socially interpreted experience.
4. Ultimately, the *pratuokng*'s revitalization highlights a broader implication for endangered musical traditions: sustainability depends less on rigid replication and more on the capacity to negotiate change thoughtfully, ethically, and collaboratively.

Limitations and Future Directions

This study was framed as a qualitative case study centered primarily on one key practitioner. While conversations with community members complemented the narrative, the findings do not claim to represent all perspectives within the Bidayuh community. Future research could incorporate comparative studies across different villages, examine gender dynamics in musical participation, and integrate longitudinal documentation to follow how innovation and acceptance evolve over time. Collaborative acoustic studies conducted in situ, involving makers and musicians as co-researchers, would also deepen understanding of the instrument's sonic possibilities while respecting community knowledge systems.

Acknowledgments

The authors wish to acknowledge Universiti Malaysia Sarawak (UNIMAS) and Universiti Putra Malaysia Sarawak for the technical and financial supports for the smoothness of this project. The authors also acknowledge the use of an AI-assisted writing tool to support language polishing and structural refinement. All interpretations and conclusions remain the authors' responsibility.

REFERENCES CITED

- Barz, G., and Cooley, T. J. (2008). *Shadows in the Field: New Perspectives for Fieldwork in Ethnomusicology*, 2nd Ed., Oxford University Press.
- Borman, A. (2013, January 29). *Pratuokng* [Video]. YouTube.
<https://www.youtube.com/watch?v=XoyDUz31P18>
- Borman, A. (2025, May 7). *Field Interview*, Annah Rais, Sarawak, Malaysia.
- Chan, C. S. C. (2018). "Sustainability of indigenous folk tales, music and cultural heritage through innovation," *Journal of Cultural Heritage Management and Sustainable Development* 8(3), 342-361. <https://doi.org/10.1108/JCHMSD-06-2017-0044>

- Hamdan, S., Said, K. A. M., Musib, A. F., Rahman, M. R., Sawawi, M., and Sinin, A. E. (2024). “Pratuokng: The Borneo bamboo zither of Bidayuh Sarawak,” *BioResources* 19(1), 1305-1315. <https://doi.org/10.15376/biores.19.1.1305-1315>
- Jähnichen, G. (2012). “Sound environment accounts about Borneo’s Land Dayaks and their echoes in contemporary performing arts of the Bidayuh in Padawan,” *Sarawak Museum Journal* 91 (New Series), 157-176.
- Kartomi, M. J. (1990). *On Concepts and Classifications of Musical Instruments*, University of Chicago Press.
- Merriam, A. P. (1964). *The Anthropology of Music*, Northwestern University Press.
- Musib, A. F. (2014). *Contextual Sound Preservation of the Local String Instruments*, Doctoral Dissertation, Universiti Putra Malaysia.
- Nettl, B. (2005). *The Study of Ethnomusicology: Thirty-one Issues and Concepts*, 2nd Ed., University of Illinois Press.
- Seeger, A. (2004). “Traditional music in community life: Aspects of performance, recordings and preservation,” *Cultural Survival Quarterly* 28(2). <https://www.culturalsurvival.org>.
- Shelford, R. (1916). *A Naturalist in Borneo*, T. Fisher Unwin.
- Titon, J. T. (2009). “Worlds of music: An introduction to the music of the world’s peoples,” *Schirmer Cengage Learning*, 5th Ed.
- von Hornbostel, E. M., and Sachs, C. (1914). “Systematik der Musikinstrumente: Ein Versuch (Systematics of musical instruments: An attempt),” *Zeitschrift für Ethnologie* 46(4/5), 553-590.
- Wu, S.-M. (1995). “Wood anatomy research,” in: *Proceedings of the International Symposium on Tree Anatomy and Wood Formation*, Tianjin, China.
- Yampolsky, P. (1995). “Forces for change in the regional performing arts of Indonesia,” *Bijdragen tot de Taal-, Land- en Volkenkunde, Performing Arts in Southeast Asia* 151(4), 700-725. <https://doi.org/10.1163/22134379-90003035>
- Zemp, H. (1996). “The/An ethnomusicologist and the record business,” *Yearbook for Traditional Music* 28, 36-56. <https://doi.org/10.2307/767806>

Article submitted: December 4, 2025; Peer review completed: January 3, 2026; Revisions accepted: August 9, 2026; Published: September 1, 2026.

DOI: 10.15376/biores.21.4.10224-10231

APPENDIX

Biodata of Arthur Borman as a Cultural Agent

Arthur Borman was born and raised in Annah Rais within the Bi'Annah Bidayuh community. Much of his early adulthood, however, unfolded in urban centres such as Kuching, Miri, and Kuala Lumpur, where employment opportunities were more accessible. Living away from the village gradually heightened his awareness that many cultural practices, particularly traditional music, were becoming increasingly fragile. When Borman returned to Annah Rais in 2007, he made a deliberate decision to reinvest his time in cultural revitalization, with the *pratuokng* at the centre of his efforts. His learning process developed through informal apprenticeship with the late Abas Pringap, a respected maker and player regarded locally as one of the last bearers of *pratuokng* knowledge. Rather than formal instruction, learning occurred through daily observation, imitation, conversation, and repeated practice, reflecting an oral system in which musical knowledge is embedded in everyday life. On 1 January 2008, Borman committed himself to working with the *pratuokng* on a full-time basis. This decision marked a transformation from being merely a cultural inheritor to becoming an active cultural leader. His work now includes performing, mentoring young players, constructing instruments, and presenting the *pratuokng* within both local and international platforms. In this sense, Borman acts as a mediator between generations and contexts, demonstrating that revitalization involves not only preserving objects, but sustaining living relationships, practices, and meanings.