A Study of Isan Folk Music Creation Using a Sampler for Music Education

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Abstract

This research represents a creative exploration in the field of music (Practice as Research: PaR) with the objectives of 1) studying the use of a sampler from Isan instruments and instruments from various cultures to create musical compositions using music software, and 2) examining the appropriate contexts for using a sampler in creative musical works. The research findings reveal that 1) Isan folk music possesses unique characteristics in terms of sound quality and performance techniques, while other musical elements can be combined with it in a technologically driven creative process. This involves connecting the concepts and methods of both traditional and diverse cultural music to create unified compositions using technology, such as recording musical notes in standard notation, exporting them as MIDI files, and then importing them into audio recording software to refine the sounds for complete songs. 2) Regarding the appropriate contexts for using a sampler in creative music, three main contexts were identified: an Isan folk music composition context, a music education context, and a commercial or music business context. In summary, the process of using a sampler for creative music works can bridge the concepts of various cultural music and integrate them with technology. Furthermore, this process can be extended to enhance interdisciplinary learning and teaching methods, making it applicable in diverse contexts.

Keywords: Isan folk music, sampler, music production, sound arrangement, musical technology

1. Introduction

1.1 Overview and Research Objectives

This article presents a comprehensive study of the intersection of traditional music and modern technology, specifically focusing on Isan folk music and its integration with digital music production techniques. Our research objectives are twofold: firstly, to explore the application of a sampler in creating musical compositions using Isan instruments and instruments from various cultures, and secondly, to identify the appropriate contexts for employing a sampler in creative musical works. This introduction provides a roadmap of the entire article, guiding the reader through the background of Isan folk music, and the technological innovations in music production, particularly in audio sampling, and culminates in the research questions that shape our study.

1.2 Background and Rationale

Folk music is considered a creative product of community members in rural agricultural societies, transmitted orally and through hands-on practice without the use of written language. It encompasses the lifestyles and customs of the people in that particular society and is a shared heritage whose origins and longevity are difficult to pinpoint. Folk songs and music are created by local villagers and feature melodies and lyrics that are short and reflective of the local context, leading to regional variations in Thai folk music, shaped by the cultural nuances of each area (Karin, 2014; Ratanopad, 2021; Tongjarat & Woramitmaitee, 2021; Choatchamrat et al., 2022; Phulaiyaw et al., 2023).

Isan folk music is another form of traditional music that has originated from creative thinking, evolving into a distinct art form that has been transmitted, developed, and passed down to the present day. It is renowned for its ability to touch the hearts and bring joy and delight to both performers and audiences alike. Some traditional musical instruments used in Isan folk music have unclear origins but have continued to evolve and spread. These instruments can be categorized into four types based on how they produce sound: stringed, percussion, plucked,

and wind instruments (Buasri, 2003; Seekhunlio & Chuangprakhon, 2021; Choatchamrat & Moonsuwan, 2022; Champadaeng, 2023; Hao, 2023).

The sound of folk musical instruments from the northeastern region of Thailand is distinctive and uniquely represents the Isan culture. Nowadays, there is a widespread practice of performing this music, as well as creating contemporary musical works that incorporate the sounds of Isan folk musical instruments directly or indirectly. This includes the creation of various contemporary music genres that blend with Isan folk music (Garzoli, 2019; Occhipinti, 2020; Hua & Chonpairot, 2020; Phulaiyaw, 2021; Seekhunlio & Chuangprakhon, 2021).

In the technologically advancing society, various factors play a crucial role in the development of every aspect, including education in all fields, leading to the creation of numerous innovations and new knowledge for the global community. Music, in particular, has seen innovation through digital technology, where sound is generated by recording real musical instruments and simulating their sounds through an audio sampling process. This innovation produces realistic instrument sounds and has become a valuable tool for creating a wide range of musical works and innovations. It not only reduces costs and recording time but also preserves traditional musical sounds, ensuring their continued use in creative endeavors without losing the essence of the original musical tones (Nopparat & Narkkong, 2019; Gorbunova & Hiner, 2019; Waddell & Williamon, 2019; Ellul, 2021; Brusila et al., 2022).

A sampler is a digital music technology that records and synthesizes the sounds of musical instruments using computer software applications. It adjusts the sound to closely resemble the real instrument's tone, fine-tuning factors like intensity (equalizer) and pitch levels. This process can create a wide range of sound variations, forming sound palettes stored in a computer program's sound library. Musicians then use these audio samples to compose or perform music without the need for real instruments, referring to the resulting sounds as audio samples. Audio sampling technology has evolved over several decades, not limited to modern music but also encompassing the collection of sounds from various sources, including ethnic music, world music, orchestral, jazz, and music from all corners of the globe. It has become a valuable tool for music creators and producers, especially those with budget constraints, as it offers cost-effective alternatives to folk music production (Nopparat & Narkkong, 2019; Wang & Yu, 2020; Rambarran, 2021; Shang & Wang, 2022; Deruty et al., 2022).

Given the significance of traditional music, which plays a vital role in people's lives within various cultural contexts, today's technological advancements have been rapidly and continuously changing the landscape. The development of technology related to music, such as sound production, recording, sound manipulation, sound imitation, and audio sampling, has brought innovations that contribute to the creation of music and songs that resonate with the evolving global society. However, it's essential to preserve the unique characteristics of folk music even as technology progresses. Researchers are thus interested in exploring the creation of Isan folk music using a sampler to promote learning, creativity, conservation, and the passing down of this music tradition while embracing technological aspects.

1.3 Research Questions

In alignment with our objectives, the research questions are framed to investigate the practical applications and contextual suitability of audio sampling in musical composition. These questions delve into the principles of music arrangement, the technical nuances of traditional instruments, and the creative possibilities in various contexts such as music education and the music industry.

1) How can audio sampling be used to create musical works, and what factors should be considered?

o   Principles of music arrangement and composition

o   Specific techniques of musical instruments

o   Pitch range

o   Traditional sound systems and the use of Western sound systems.

2) What are the guidelines for using a sampler to create musical works in different contexts?

o   Creativity in music learning and academic music

o   Creativity for integrating songs into the music industry

o   Creativity for various social contexts

2. Method

This research utilizes Practice as Research (PaR) in music (Hanks, 2019) to explore Isan folk music composition

and the sonic characteristics of its traditional instruments. The methodology involves systematic data collection and analysis, using specific equipment and software, which are detailed below.

2.1 Data Collection

Data were gathered focusing on:

o   Isan Folk Music: Study of composition, musical arrangements, instrument texture, melodic patterns, sound characteristics, performance, and ornamentation techniques. Sources include research, documents, textbooks, online media, and sampler experiments.

o   Audio Sampling Knowledge: Exploration of sound characteristics, emulation techniques for musical instruments, command set usage, and sound recording. Methods include reviewing literature and practical experimentation with a sampler.

o   Sampler Application: Composing and arranging folk songs, and recording audio samples, using techniques suitable for the composed and arranged pieces.

2.2 Data Collection Instruments

The research employed specific equipment and software, each chosen for its unique capabilities to enhance the study of Isan folk music and its digital representation:

1) Computers with Audio Sample Processing Software:

o   Purpose: These computers were equipped with specialized software designed for editing, processing, and analyzing sets of audio sample data.

o   Contribution: The software facilitated the manipulation and arrangement of audio samples, crucial for studying the composition and sonic characteristics of Isan folk music. It allowed for precise editing and provided tools for analyzing sound patterns, essential for a detailed understanding of the music's structure.

2) Audio Interface Devices:

o   Purpose: These devices serve to connect recording equipment, converting analog signals from instruments into digital formats for processing.

o   Contribution: They were essential for integrating external sound sources into the digital realm. This conversion was critical for capturing the authentic sounds of Isan folk instruments and translating them into a format suitable for detailed analysis and manipulation in the software.

3) Keyboard Controller:

o   Purpose: The keyboard controller was used for inputting commands and controlling various aspects of the audio sampling software (Kilian, 2021).

o   Contribution: It provided a hands-on approach to managing the audio samples, enabling real-time adjustments, and facilitating a more intuitive interaction with the music during the composition and arrangement processes.

4) Keyboard Instruments with Audio Sampling Capabilities:

o   Purpose: These instruments allowed for the continuous recording of music performances, equipped with capabilities to capture, and store audio samples.

o   Contribution: They were pivotal in creating a bridge between traditional Isan folk music performance and its digital representation. The ability to record and sample music directly from performances ensured that the digital compositions retained the essence and authenticity of live Isan music.

5) Quality Assessment Forms:

o   Purpose: These forms were utilized to gather expert and participant opinions on the suitability of the composed songs and the audio quality of the instrument sounds resulting from composition and arrangement using a sampler.

o   Contribution: They provided a structured approach to collecting feedback, ensuring that the digital representations were not only technically sound but also resonated well with the cultural and aesthetic standards of Isan folk music. This feedback was crucial for refining the compositions and ensuring their authenticity and relevance.

Each piece of equipment and software was carefully selected for its ability to contribute to the research's goals, ensuring a comprehensive and authentic study of Isan folk music in a digital context.

2.3 Data Verification and Analysis

o   Data Examination Stage

Includes studying and organizing data on Isan folk music and experimenting with sound emulation using MIDI systems.

o   Framing the Concept of Folk Instrument Techniques

Data analysis to select and use musical instruments in composing Isan folk songs.

o   Evaluation by Experts

Evaluation of the use of samplers and musical compositions, followed by necessary adjustments.

2.4 Creation of Folk Music

The process involves composing melodies using the pentatonic scale and traditional Isan modes, arranging music to reflect the characteristics of Isan folk instruments, and recording using audio sampling techniques. The suitability of using a sampler and the musical composition is assessed and adjusted based on expert feedback.

2.5 Summary and Presentation of Research Findings

o   Research Summary

Presentation of findings in analytical narratives, aligned with research objectives.

o   Presentation of Creative Work

Presentation of the creative work in audio (.wave) format.

3. Results

3.1 Using a Sampler of Isan and Cross-Cultural Musical Instruments in Folk Music Production

The researcher explored the use of a sampler from Isan musical instruments and instruments from various cultures in the creation of folk music. The process involved studying data related to Isan folk music, such as musical arrangement, instrument characteristics, melodic patterns, and the use of scales. Additionally, it examined audio sampling techniques and how they could be used with different input methods. The researcher found that there were differences between traditional folk music and technology in various dimensions but discovered ways to combine them in music production. This involved finding suitable connections and selecting traditional instrument features for the texture, melodic patterns, and the use of a 5-tone scale. The researcher also used keyboard control to input commands for a sampler, selecting different audio sampling techniques for instruments like Wot (circular panpipe), Khaen (bamboo mouth organ), drums, and various percussion instruments. These techniques were employed based on suitability, and the MIDI files generated were then imported into Logic Pro for sound recording, as it provided convenience and produced sounds closely resembling real instruments such as the Saw (Thai fiddle) and bass guitar. Phin (Thai lute) and Pong Lang (Isan xylophone) utilized keyboard control for MIDI input in Logic Pro, as it involved different techniques from note input through a notation program. Sound recording was done using keyboard instruments with a sampler capability for continuous recording, similar to recording with real traditional instruments. After recording the audio samples for Isan folk instruments from different sound directions, the researcher balanced the sound to make it suitable for the composition.
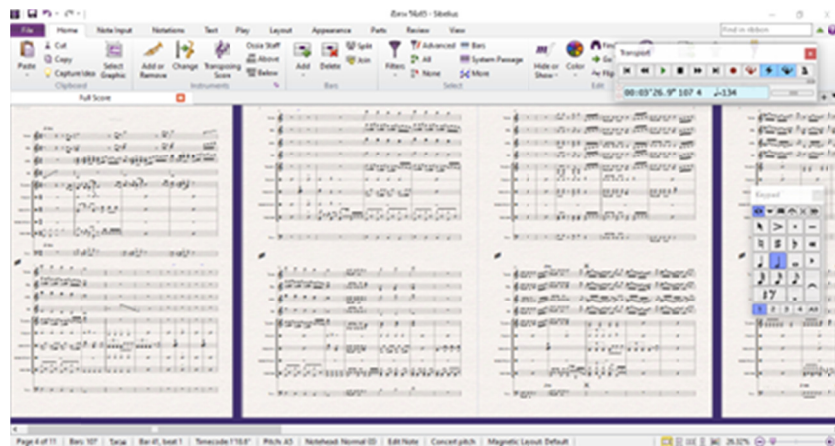
Figure 1. Note recording overview from Sibelius Ultimate

Figure 2. The use of a keyboard controller for MIDI input commands

Figure 3. The use of a synthesizer keyboard to record sound using a sampler

After the researcher composed, arranged, recorded, and balanced the sound, they sought opinions from 5 experts on various aspects of the work. The expert panel was carefully selected for their diverse qualifications and expertise. The first expert brought a deep understanding of Isan folk music, knowledgeable in both its traditional and modern forms. The second expert had a strong background in music composition and arrangement, providing insights into the structural aspects of the music. The third member of the panel specialized in audio engineering and sound recording techniques, offering valuable perspectives on the technical quality of the recording. The fourth expert had experience in the use of samplers and electronic music production, contributing to the modern and innovative aspects of the work. Lastly, the fifth expert was familiar with MIDI programming and its application in music creation, ensuring the technological aspects of the music were well-utilized and

effective. The opinions expressed in various aspects are as follows:

1) Realism in Selecting Audio Samples

Regarding the realism of the audio samples, experts noted that the Isan folk instruments used by the researcher for composition and arrangement closely resembled the real instrument sounds. However, they emphasized the need to choose appropriate performance and recording techniques that accurately reflected the unique techniques of each folk instrument. The researcher adjusted the recording techniques for each Isan folk instrument based on the experts' recommendations.

2) Suitability of Composed Melodies with a Sampler

Experts found that the melodies composed to accompany the sampler were suitable and closely resembled the way these folk instruments would be played. However, they advised caution in terms of MIDI note weight to closely match the weight of real instrument performance, ensuring a more authentic representation.

3) Specific Techniques of Isan Folk Instruments

Comparing the use of a sampler to real instrument performances, some specific techniques of folk instruments might differ or exhibit more vibrato in the audio samples. This was particularly noticeable in techniques such as tremolo on string instruments, especially when playing the Phin (Thai lute). Nevertheless, the experts acknowledged the flexibility and potential of this approach in creating Isan folk music.

4) Overall Creation of Isan Folk Music with a Sampler

Experts opined that creating Isan folk music with a sampler offered a convenient and cost-effective approach. These methods could be applied to other forms of folk music or used as basic educational tools for music instruction. The collaborative development process involving composition, musical arrangement, folk music performance, sound recording, and audio balancing techniques had the potential to elevate Isan folk music.

5) Application in Various Contexts

The experts believed that the work of creating Isan folk music using a sampler could be adapted for various contexts, particularly for live performances, where it could be used as the foundation for creating comprehensive performance sets or developing new folk songs in different formats.

In summary, the use of a sampler for creating Isan folk music was considered a promising and versatile approach with the potential to enhance the understanding and appreciation of this musical genre in various settings.

3.2 Appropriate Contexts for Using a Sampler in Music Production

Based on the study of using a sampler from Isan musical instruments and instruments from various cultures in creating Isan folk music, it was revealed that the suitable and commonly used contexts for incorporating a sampler in music production include the following significant contexts:

1) The Use of Isan Folk Musical Instrument Samplers in Composing Isan Folk Songs and Blending Musical Cultures

Utilizing samplers from Isan folk musical instruments in this manner represents a creative reimagining, particularly in the composition of melodies. Composers predominantly choose samplers that closely resemble the timbre of real musical instruments to create Isan folk songs, leveraging these samplers. Additionally, they can employ samplers from various musical instruments to create works in different musical genres.

2) The Use of Isan Folk Musical Instrument Samplers in the Context of Music Education

Based on the conducted research, it was found that utilizing samplers in music creation can incorporate pertinent knowledge. Nevertheless, it is crucial to investigate the processes and approaches to integrate or develop innovative teaching methods that can bridge knowledge from music creation technology with samplers, thereby enhancing value in music, technology, and education.

3) The Use of Isan Folk Musical Instrument Samplers in the Context of Commercial Music

Audio samples from Isan folk musical instruments or other instruments play a significant role in the commercial music industry. They serve both as tools to facilitate the creation of commercial music and as musical products that generate income. They involve costs, profits, producers, and users. The commercial use of samplers is prevalent today, including their application in music production, utilization as sound data for musical purposes, and incorporation as musical products within the music business system.

Based on the study findings presented, it is evident that the audio samples from Isan folk musical instruments can be utilized in the creation of music. This application extends to various music genres, including Isan folk

songs, contemporary compositions, or any other songs that require the unique sound characteristics of Isan folk musical instruments. There are methods and processes involved in adapting these samplers to match the song's format. This includes composing melodies that suit the instrument's timbre, choosing appropriate methods for utilizing audio samples, managing, and arranging the suitable instrument sounds, selecting the right input methods for audio sampling, and utilizing various techniques available on the real musical instruments that can be replicated by the sampler. All of these efforts aim to achieve an authentic sound of Isan folk musical instruments, leading to the creation of high-quality Isan folk music and potentially other music genres where the audio samples of Isan folk musical instruments can be applied effectively.

4. Discussion

The study of Isan folk music creation using a sampler for music education emphasizes the importance of the process involved in applying diverse knowledge sets. It is evident that Isan folk music holds a unique cultural significance as a cultural heritage of the region, as demonstrated by various multidimensional studies on Isan folk music, which have played a pivotal role in cultural music education (Prasertsri & Vongporamat, 2019; Akkapram, 2020). This research predominantly focuses on the essential musical components of Isan folk music and aims to connect Western musical techniques and processes with the use of music technology to create Isan folk music. The common thread in all these processes is the musical components, which are fundamentally similar across various cultures. Therefore, the utilization of sampler-generated sounds for Isan folk music creation in this study has revealed the potential for harmonizing diverse musical concepts and making them suitable for both traditional and contemporary Isan music forms, contributing to the preservation of cultural heritage (Patarateeranon, 2019; Boonsrianan & Mueanprom, 2023). Furthermore, the research findings indicate the applicability of this knowledge in educational contexts related to song composition, musical arrangement, folk music performance, sound technology, and music education (Potipadcha & Boonsrianun, 2022; Phonkhet, 2023; Chaichinda et al., 2023). These findings also serve as a foundation for further developments in designing, producing, and innovating music education methods, ultimately enhancing the effectiveness of future educational practices (Nopparat, 2019).

Competing interests

Not applicable.

Informed consent

Obtained.

Ethics approval

The Publication Ethics Committee of the Canadian Center of Science and Education.

The journal's policies adhere to the Core Practices established by the Committee on Publication Ethics (COPE).

Provenance and peer review

Not commissioned; externally double-blind peer reviewed.

Data availability statement

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

Data sharing statement

No additional data are available.

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