

## *Creative Method*

# The U9 Xylophone: An Innovation in Music Classroom Teaching

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### **ABSTRACT**

*The native cultures of Sabah are rich in traditional musical instruments. However, through a recent survey of a few primary and private schools around Kota Kinabalu in Sabah, the author noticed that the musical instruments used to teach music are mostly Western. This observation raises an important question: Is it possible for local musical instruments to be modified for teaching music in the classroom? A careful observation of the kulintangan (set of small kettle gongs) and gabang (wooden xylophone) from the Kinabatangan area of Sabah allowed the author to create a modified bamboo xylophone, which she named the U9 Xylophone, since its target users are children under nine years of age. The U9 Xylophone set was specifically modified and tuned for three different ranges: soprano, alto and bass. This paper describes the physical structure, tuning system, mallets and performance technique of the U9 Xylophone set. In addition, it offers some suggestions for the use of the U9 Xylophone in teaching, including two music arrangements. The author thus hopes to promote the nationwide utilisation of local innovative products for the teaching of music to children under nine years of age.*

**Keywords:** *musical instrument, bamboo xylophone, music arrangements, local innovative products, teaching of music*

## INTRODUCTION

Recent years have seen increasing interests in incorporating instruments and music from different cultures into musical instruction (Beegle 2012; Dontsa 2008; Greenberg 1992; Han 2002; Schmid 1992; Simeon et al. 2011; Smith 2010). The peoples of Sabah, the eastern Malaysian state in northern Borneo, have many traditional instruments, including idiophones such as gongs, *tagunggak* (struck bamboo idiophone ensembles), the *kulintangan* (sets of small kettle gongs on a rack), the *gabbang* (*nibung* palm or bamboo keyed xylophone played in east coastal communities), *gabang* (wooden xylophone from the Upper Kinabatangan River area), membranophones (including one or two of different kinds of drums played with gong ensembles according to culture), aerophones such as the *sompoton* mouthorgan, mouthflutes, noseflutes, and jew's harps like the *bungkau*, and chordophones such as the idiochordal bamboo tube zither *tongkungon* and the long-necked strummed lute *sundatang* (Pugh-Kitingan 2004). Despite these rich musical traditions, a recent survey of primary and private schools around the town of Kota Kinabalu in Sabah revealed that musical instruction mostly focuses on teaching and learning of Western instruments such as the recorder, tambourine, keyboard and piano. Sadly, many children in Sabah have little knowledge and less experience of their traditional musical instruments.

Interest in learning traditional Sabah instruments has declined. Pugh-Kitingan (2004) observed the declining performance of traditional music due to electronic media entertainment such as radios, television, video and VCD players. Likewise, few young people in rural areas are interested in playing traditional musical instruments to date (informants). Urban children are also unfamiliar with these instruments. In rural schools, the lack of exposure and instruction may be a result of the "lack of funds to purchase new musical instruments

and replace damaged ones" and most schools' "lack of instruments and resources" (Gahziah 2006). Most teachers do not have experience with traditional instruments, having been trained instead to use Western instruments in general music instruction.

This paper focuses on the various steps of modification of the traditional *kulintangan* to the present U9 Xylophone set. The use of this innovative final product in musical instruction will also be discussed. This study explores possible uses of the bamboo xylophone from augmenting existing classroom activities to developing musical concepts to early childhood music education. By adding this new instrument to his or her classroom, a teacher can open up new realms of timbres to accompany singing and combine the xylophone with other instruments as an ensemble in their music teaching journey.

#### **FROM *KULINTANGAN* TO WOODEN *GABANG KAYU* AND DERIVATION OF THE BAMBOO U9 XYLOPHONE**

The *kulintangan* is a set of small bronze kettle gongs that falls under the idiophone category (Photo 1). This instrument has been used in Sabah for over 200 years, having developed in Southeast Asia and circulated among coastal communities through trade from Brunei and the Philippines (Pugh-Kitingan 2004). The high class Iranun of the west coast of Sabah, which was once part of Brunei, formerly forged gongs and *kulintangan* (Pugh-Kitingan 2010a). It can be found among the Brunei, Iranun, Bajau, coastal Kadazan, Kimaragang, Tobilung, Tidong and Orang Sungai communities in Sabah, with the number of small knobbed gongs varying from 8 to 12 depending upon the ethnic group. The small knobbed gongs are placed horizontally on a bamboo or wooden frame and the player usually sits on the floor and plays with a pair of soft wooden beaters. The small gongs are arranged in order of pitch from left to right, beginning with lower pitches on the left.



**Photo 1** *Kulintangan* of Bilit Village, Kinabatangan.

Today, some *kulintangan* and gongs are produced locally in Sumangkap, a modern gong-making village among the Rungus that supplies all kinds of gongs to most ethnic communities and regions of Sabah such as Kudat (the Rungus themselves do not play the *kulintangan*, but make it for the coastal communities that do). There is no fixed pitch; rather, tuning is often done by ear. Most performers and makers tune the instrument according to what "sounds right," and instruments are usually tuned to anhemitonic pentatonic pitch arrangements.

In an ensemble, the *kulintangan* provides the main melody with support from other instruments. Ensembles perform during celebrations, such as harvest festivals or weddings and sometimes to accompany dance performances. There is no written notation; all music is passed down by ear from generation to generation.

The Orang Sungai (*Orang* means "people" and *Sungai* refers to "river") refers to Paitanic ethnic groups, many of whom live along the Kinabatangan River. They play the wooden idiophone, known as *gabang kayu* or wooden xylophone, which consists of 8 to 12 bars or plates (Photo 2) made of *pogil* wood on a resonator box. According to Pugh-Kitingan (2004), "the wooden xylophone *gabang* or *gabbang* is said to have been introduced into Sabah from the Southern Philippines." The Makiang (Upper Kinabatangan) wooden *gabang* has developed from the east coastal *gabbang* (which has *nibung* palmwood or bamboo keys) through historical trading contacts with the coastal Bajau and Suluk (Pugh-Kitingan 2010b).

According to Arip bin Amirin, a music teacher, instrument maker and leader of the Milian Mengalai ensemble group at Bukit Garam on the Kinabatangan River, the wooden *gabang* is increasingly found along the Kinabatangan River as a substitute to the *kulintangan* because many families cannot afford to own a set of *kulintangan*.

The bamboo xylophone (Photo 3) is lighter than a conventional xylophone (which is made from wood or metal) and the materials are easy to find. In 1989, Giansing Lakansa, a well-known local instrument maker from the Dusun of Tenghilan near the west coast, modified a local wooden xylophone from Tenghilan into a bamboo xylophone. He was inspired by the fact that the *tagunggak*, a set of traditional struck idiophones, is made from bamboo that can be obtained easily and inexpensively in the village. Giansing added F and B (two more bars named after notes in the Western diatonic scale) to the original wooden xylophone, which was tuned using the pentatonic scale. This modification allows the bamboo xylophone to play the diatonic scale, permitting more complex melodies as well as accompaniment.



**Photo 2** *Gabang* of Bukit Garam, Kinabatangan.

Other than Giansing Lakansa, another well-known local musical instrument maker in Sabah is Philipus Jani. He is a contemporary Kadazan Dusun musician from Tambunan in the interior, who has developed a bamboo saxophone known as somporing. The somporing has been patented with the Intellectual Property Corporation of Malaysia (Kronisma 2009). Besides making the saxophone, he is also well-known for making other bamboo musical instruments such as the xylophone, flute, *gambus* and recorder.

### USING THE MODIFIED BAMBOO XYLOPHONE TO TEACH MUSIC



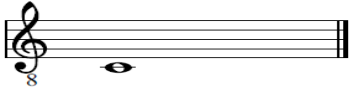
The U9 Xylophones have been developed by the writer from this modified bamboo xylophone, and made with the assistance of Philipus Jani. The modified bamboo xylophone, like the traditional instrument, is composed of two main parts: the rectangular bamboo bars and the resonator box (wood). A set of U9 Xylophone (Photo 3) consists of three different melodic ranges: soprano from C' to E'', alto from middle C to E and bass from a single bar designed for the lower range. The xylophone is named the U9, a reference to the under-nine years age group as well as to Universiti Malaysia Sabah, the ninth public university in Malaysia, where the author developed this innovation.



**Photo 3** A set of U9 Xylophone.

The melodic range of a modified bamboo xylophone is presented in Table 1. Children can experience singing with a simple melody or accompaniment by playing this set of pitched percussion instruments.

**Table 1** Melodic ranges of bamboo xylophone

Soprano	The soprano bamboo xylophone bars are notated: 
Alto	The alto bamboo xylophone bars are notated: 
Bass (Single Bar)	The bass bamboo xylophone bar is notated: 



## **TUNING SYSTEM**

Traditionally, the *kulintangan* and *gabang* are tuned according to anhemitonic pentatonic tonal material. Makers often tune the *gabang* by ear and closely follow the tuning practices of *kulintangan* from their village. Today, according to the local instrument maker of Bukit Garam and Tenghilan who had formal music knowledge, the *gabang* and bamboo xylophone are tuned using a guitar tuner to ensure the instrument can be played with modern instruments and music repertoire. The U9 Xylophone is tuned using the chromatic tuner, also based on the Western diatonic scale, which comes in three different ranges (soprano, alto, and bass). The pitch is determined by the length and thickness of the bamboo, usually by removing material at the middle or the ends of each bar.

## **PERFORMANCE TECHNIQUE**

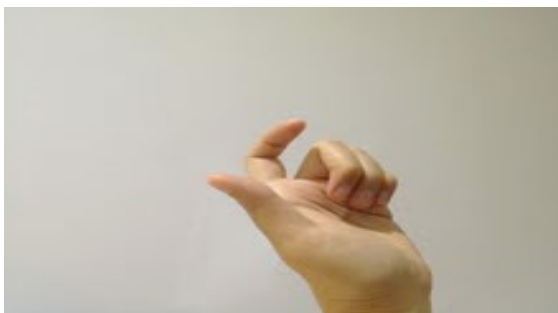
During a performance, a modified U9 bamboo xylophone is placed on the floor in front of the player, with the lower-pitched bars on the left (as for the Makiang *gabang*, but opposite the arrangement for the east coast Bajau *gabbang*, (see Pugh-Kitingan 2010b). Players kneel or sit cross-legged, enabling them to hold the mallets and move their arms and elbows freely while playing the xylophone (Photo 4).



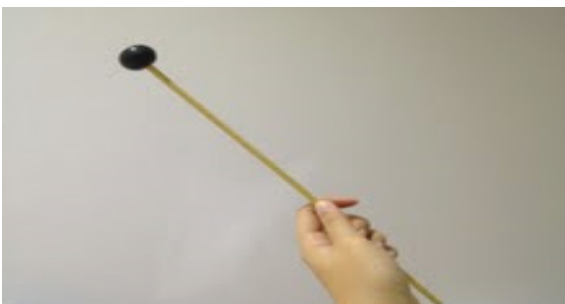
**Photo 4** Nine year old children from SK Mutiara playing the U9 Xylophones.

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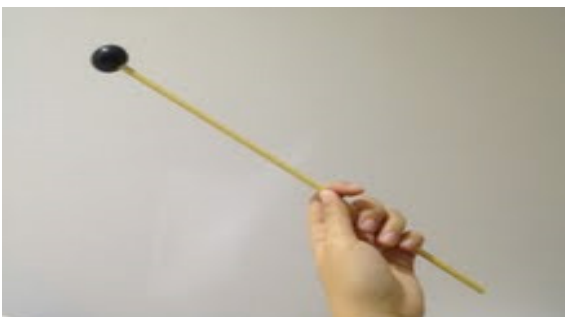
Photos 5 to 7 demonstrate the technique of mallet holding so that beginners can practice even before they strike a bar.



**Photo 5** Stretch the thumb and first finger in an L shape.



**Photo 6** Rest the mallet under the first finger.



**Photo 7** Close the fingers, covering the mallet in a natural shape.

The bamboo bars are removable, so beginners can remove bars that are not necessary and easily strike the correct bar. For example, if a simple chord such as chord I, IV or V (C, F or G chord) needs to be played to accompany a particular melody, the player can remove the bars labeled with the letters D, E, A and B to make the correct note easier to locate (named after notes in the Western diatonic scale).

By learning the bamboo xylophone, children learn to play individually, as accompaniment and in ensemble groups. The bamboo xylophone can be used to accompany drone and ostinato with a melody, as it is similar to Orff's barred instruments.

## **CLASSROOM APPLICATION**

The following examples show how the U9 Xylophones can be taught (see Appendices 1 and 2). They are arranged using Orff style: soprano, alto and bass. Both arrangements can be played in an ensemble, to accompany singing or dance, or combined with other instruments such as castanets, a triangle or a drum. Music parts should be taught by rote in keeping with the oral tradition of the region. In this way, children can learn sounds before notes to develop their memory and listening skills. After they have learned the song, they can be shown the notes. As is the case with the Kodaly approaches, this method creates a strong groundwork wherein a child is familiarised with sound before being taught to recognise notes.

### **Hot Cross Buns**

The first song arrangement is "Hot Cross Buns," a popular nursery rhyme. This is a simple song that can be used to introduce Kodaly hand signs with the movable "Do" because the song is limited to three notes: Do (*d*), Re (*r*) and Mi (*m*). For example, children may start with E (C key), A (F key) or B (G key). The soprano plays the main melody (*d*, *r* and *m*),

accompanied by Alto ostinato (see Figure 1) and bass with the repetition of one note only (*d*). The song is performed in an AABA form.



**Figure 1** The Alto ostinato accompanying "Hot Cross Buns".  
(The complete score is listed in Appendix 1).

### Lenggang Kangkung

The second song is "*Lenggang Kangkung*," a Malaysian folk song that is popular among children. Structurally, this song is in a major key, has an AABB melodic structure and uses a four-bar phrase. The teacher may divide it into smaller sections to allow students to become familiar with the music, as there are more complex rhythm patterns and melodic range for the soprano xylophone. For example, the teacher may focus on the solfege and invite students to echo. After that, the children may explore the song they have sung by playing the xylophone. This practice may help children to develop their ear training skills and solfege. One child can sing or play the melody on the soprano xylophone while another can play accompaniment on the alto with simple chords such as chord I, IV or V (see Figure 2) or on the bass xylophone with repetition of one note only.



**Figure 2** Simple chords in "*Lenggang Kangkung*" played by the Alto xylophone.  
(The complete score is listed in Appendix 2).

## **CONCLUSION**

This paper introduces the U9 xylophone set as a new ensemble of instrumental teaching aid for the music classroom. At the same time, it creates awareness of teaching and learning local instruments in schools. Children younger than nine years old can play this simple instrument as melody or as accompaniment for more commonly taught instruments such as a recorder, keyboard or percussion instruments. While teaching these instruments, the writer observed that children enjoyed playing the bamboo xylophones. The children responded positively and the instrument was easily played by younger children.

Playing an instrument is an important component in music curricula to develop children's musical understanding, musical conceptualisation, performance and ear training skills. Teachers can use these simple and portable ensemble instruments to teach melody, rhythm, harmony and accompaniment with other instruments. Children can learn to play individually, with partners and in ensembles. Children will appreciate and better understand the local instrument when they are involved in playing it, as they can relate through visual, auditory and kinesthetic stimuli. Also, they are given an opportunity for greater exploration of the instruments, increasing the chances that they will develop an interest in music. The bamboo xylophone is recommended for use in playschools, kindergartens, primary schools as well as private music schools.

## **ACKNOWLEDGEMENT**

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*Jinky Jane C. Simeon***APPENDIX 1**

**HOT CROSS BUNS**  
 Nursery Rhyme  
 Arranged by Jinky Jane C. Simeon

U9 SOPRANO XYLOPHONE

Hot cross buns! Hot cross buns!

U9 ALTO XYLOPHONE

U9 BASS XYLOPHONE

3

One a pen - ny two a pen - ny, Hot cross buns!

## APPENDIX 2

LENGGANG KANGKUNG  
Malaysia Folk Song  
Arranged by Jinky Jane C. Simeon

The musical score is arranged in three systems, each with three staves. The top staff is for Soprano Xylophone, the middle for Alto Xylophone, and the bottom for Bass Xylophone. The lyrics are written below the Soprano staff.

**System 1:**

U9 SOPRANO XYLOPHONE:  $\text{Leng - gang leng - gang kang - kung kang - kung te - pi te - la -}$

U9 ALTO XYLOPHONE: [Musical notation]

U9 BASS XYLOPHONE: [Musical notation]

**System 2:**

U9 SOPRANO XYLOPHONE:  $\text{ga Leng gang leng - gang kang - kung kang - kung te - pi te - la - ga Ba -}$

U9 ALTO XYLOPHONE: [Musical notation]

U9 BASS XYLOPHONE: [Musical notation]

**System 3:**

U9 SOPRANO XYLOPHONE:  $\text{lik da - ri me - nya - bung ma - kan - lah na - si sa - ha - ja Ba -}$

U9 ALTO XYLOPHONE: [Musical notation]

U9 BASS XYLOPHONE: [Musical notation]

**System 4:**

U9 SOPRANO XYLOPHONE:  $\text{lik da - ri me - nya - bung ma - kan - lah na - si sa - ha - ja}$

U9 ALTO XYLOPHONE: [Musical notation]

U9 BASS XYLOPHONE: [Musical notation]



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