Indonesian Gamelan – An Extended Introduction

Basics and further reading for both teachers and non-music specialists.

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At Drums for Schools Ltd we appreciate that even with full support and encouragement, some of you may wish to dig a little deeper very early on in order to feel confident about teaching a particular area. You may wish to read around the subject and choose for yourself which key areas to embellish further in your lessons but not be entirely sure what information should be classed as relevant. To this end, Richard McKerron has written this introductory article which utilises information from Andy Gleadhill's Indonesian Gamelan Book, as well as more in depth information from further afield. This will give you a strong starting point to read on even further, or in isolation provide you with enough information to answer the trickier questions that may be put to you within a lesson.

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General Introduction

Gamelan is a wonderfully hypnotic and versatile genre of music which draws both the listener and the performer in to a calm state of concentration. The repetitive rhythms and cycles make learning and composing as easy or difficult as you see fit, and learning more complex sections is easy once the basics are mastered as most of the complex melodic and rhythmic ideas are based on the initial core melody.

What Is Special About Gamelan And Why Should You Do It?

It is very much a group activity, and can foster a sense of belonging within the group. Taken further, you can link in spiritual concepts and treat the orchestra like a living thing, making offerings before rehearsals and performances and respecting other protocols.

Speed changes are an embedded concept to the music itself, which allows you to adjust performance tempo to suit your players. There is a place for everybody within an orchestra such as this.

How Could You Introduce Gamelan To Your School?

There are many ways to bring Gamelan into your establishment, and we offer a large range of instruments and equipment to meet all of these eventualities.

For younger years in primary school, you may consider getting some Ceng Ceng cymbals and some budget metallophones in order to lead sound exploration and simple melodies. These would be light-weight and a fair compact solution for when storage is an issue and would also make it easy to share between classes.

For older primary you may wish to invest in a sizable standard or premium set of instruments, affording a more robust sound and a visually more impressive display for performances. This would allow you to teach them basic instrument care and respect. A small lunchtime club or after-school club could be established to take their learning further.

At a secondary level, it would be worth considering investing in a larger premium set of instruments. The larger range of instruments leads to more complex and interesting melodic possibilities as well as giving you the possibility to really focus on the concepts across a half term a year to all KS3 groups. This would encourage musical development as they build year on year on what they have learned and would inherently make for more creative musicians due to the repeat return to the concepts, especially if you encourage independence in the later years and allow them to approach with a more fusion-based attitude instead of strict cultural accuracy.

What Could You Achieve?

In a day:

- Generate an interest in other ways of making music.
- Foster an interest in other cultures and histories.
- Introduce the concept of ostinato and syncopation/off-beat.

In a term:

- Teach and learn an entire melody.
- Layer two more strata onto the main melody.
- Create a set structure for a performance.
- Introduce the concept of tempo changes.
- Delegate a leader, practice leadership skills.
- Develop listening and improvisational skills.
- Begin to rotate students so they learn a breadth of instruments.

In a year:

- Establish a regular club.
- Develop the identity of music within the school.
- Hold/take part in several performances.
- Compose own pieces using traditional structuring.
- Research subject matter in further detail as a project.

In three years:

- Create a mentor system that allows older students to teach newer members of the club.
- Hand over control of performances to the students.
- Perform in the community.
- Use the resources as part of transition days, utilising young experts.

Benefits

Investing long-term in a Gamelan orchestra is worthwhile on many levels. Done properly it will benefit the students, the teachers delivering and teaching the content, and the establishment and community on a wider level.

- **Benefit to students**

Performances and rehearsals with a full orchestral set up can foster self-management and organisational skills, relying on self-motivation to get the best out of these aspects of a person. Goal-setting and personal targets can move students forward step by step, leading to an appreciation of the progress they have made when they look back on previous weeks.

Social awareness and an appreciation of diversity can be incorporated if the students look into Balinese culture and history, from the area's own local history through to the Dutch colonisation and the influence of Victorian tourism.

Rehearsal sessions inherently involve planning and discussion, leading to interpersonal communication skills being developed as a structure is created amongst the students for the performances. Eye contact and non-verbal communication is a boon to this type of music and responding to facial micro expressions can lead to truly effective performances as massive alterations in the music suddenly appear as if from nowhere.

An evaluative feedback process can be encouraged, as the student hears the stimulus, responds in kind attaching a value to the process and the new skill they have developed. They then better organise the information in their heads through repeated sessions, leading to them identifying with the skill and the group as part of their own identity to be proud of, with a sense of belonging and community, as well as having a valuable skill that they can share with others.

There are also several positive character traits that are encouraged through this sort of activity, including Good Humour, Social Intelligence, Strength of

Character, a Love of Learning, Self-Control, Curiosity, Open-Mindedness, Creativity, Gratitude, Leadership, and Spirituality.

- **Benefit to teachers**

Teachers and session leaders will benefit in exactly the same ways as the students, but there are added bonuses from an academic leader perspective.

The teacher as leader has the opportunity and responsibility to model good technique and good practice to the students, which leads to a respect of their skill instead of conformity of authority – a much healthier interpersonal relationship between student and teacher. With this in mind it is useful for the teacher to know all of the parts and how they fit together so that they can flit back and forth between students seamlessly. This is easier with this type of music as the secondary melodies are based upon the main root melody.

It is easy to structure your planning to fit in line with Bloom's Taxonomy, should that be something required of you. Take this as also an opportunity for effective differentiation in the lesson plans, whilst retaining an ability to stay alongside the popular 'differentiation by outcome'. Students as a whole can be taught the basic root melody together, and the teacher can simply move students forward onto more difficult melodies without disrupting the flow of the piece itself. From a differentiation perspective it is a very useful style to pursue.

Compositional feedback loops can be created once the basics are mastered. Students can work in pairs to create a melody, and then evaluate its effectiveness. They can then teach others the melody in a team scenario and develop secondary melodies with a mentor/mentee approach. As a group they can evaluate its effectiveness further. This becomes compositional work which is driven by the students and less teacher-led as time goes on, allowing for effective formative assessment to take place.

After-school clubs are especially effective if a strong core of at least eight can be maintained. This gives you enough students for each of the main instruments to be doubled up, a student on a drum and another on the Gongs.

Less is perfectly plausible, but progress will be stronger with doubled parts to maintain flow should anyone temporarily drop out.

- **Benefit to whole school and community**

Schools can benefit from a Gamelan club after school. Not only does it give the individuals a sense of belonging and ownership, a consistent register of attendees can be used as evidence of the club's impact and can be cross-referenced against their attendance in general and other statistics within the SEF as required.

With the origin country of Bali being largely Hindu with strong Animism roots it can be quite effective to pair up with a religious education project in order to research this further and investigate why it has retained this religious and spiritual approach despite a majority of the surrounding islands being Islamic.

The school as a whole can benefit from an investment in musical groups such as this as they raise a positive profile in the community if given the chance to shine publically.

With a decent set list of performances in place you may find that your Gamelan orchestra is in demand and requests made for performances at high level local events. Such is the weight and size of the equipment, it inherent carries gravitas.

An investment in some decorative sashes or ribbons for the performers and their instruments (especially black and white chequered patterns) can add to the sense of identity of the group and there will be a strong visual link between the music and the school itself, increasing the perception of its standing and success.

To take things a step further, a community group or series of short workshops could be offered out to parents with members of the school group assisting and teaching. You could invite primary feeder schools in to show potential future students the sorts of things that they can look forward to at your school and foster interest from before day one.

History and Cultural Background

The origin story behind the Gamelan strips the orchestra right back to the most fundamental of its instruments – the Gong Gdé, or Gong Ageng. This is the largest of the gongs in a Gamelan orchestra and first appeared in Javanese mythology in roughly 167AD when Sang Hyang Guru needed to contact the gods. He constructed the gong in order to send messages, and created two smaller gongs with different pitches in order to send more complex messages. This formed the first Gamelan and to this day the gongs are fundamentally integral to the Gamelan orchestra. The hammers that are used to play a majority of the instruments are called 'gamel' and the suffix '-an' implies 'many'. Essentially, Gamelan means lots of hammering beats.

Bali is a captivating place full of wonder and intrigue. Music is respected and entertainment in general, whilst having structure, is largely timeless. Musicians will take their cues from the dancers instead of dancers learning their pieces to the music; shadow puppet shows will be performed of well-known histories or legends, but may dwell on one idea for hours, and then wrap up the remaining story inside ten minutes if it starts to rain; celebrations may go on for several days; trees and bushes are respected and prayed for before they are cut down. The Balinese respect every living concept as part of the influence of Animism in their culture and this in turn leads to a great respect for existence.

From a musical standpoint, each street or district (banjar) traditionally had a gamelan that would play against others in competitions. Members would have presidents and secretaries. They would pay subscriptions and the money would go to maintaining the instruments, decoration and transportation, as well as on occasion hiring a musical master to come and teach a particularly old or unique piece for a competition. Competition could be quite fierce. Aside from competitions, Gamelan music can be heard accompanying Wayang Kulit (shadow puppet plays) and religious ceremonies.

The music itself is ostinato-based, although the ostinati may last for many beats before unperceivable looping around again. Melodic decorations are mathematically derived from the main melody in a number of ways and the supporting 'bass line' of the music is created conversely in an opposite way.

Gongs mark specific sections of the melody in a similar concept to bar lines, although it is more complex than this simplification. The largest gong tends to be played on the very final beat of a cell, or loop.

The Dutch East India Company had a significant hold over Bali and other local areas by 1602 and in the 18th Century Dutch force took over large areas of Bali by force, including some notable massacres and suicidal defensive moves by the native citizens. They moved into the palaces, but with some good grace allowed the locals to take the palace Gamelan instruments away instead of destroying them outright. By assisting some local principalities they managed to weaken others and expand their own influence.

By the Victorian era, tourism was beginning to become a strong concept and many wealthy Europeans would take extended sailing trips all the way to Bali. The local performers and musicians soon made a link to the amount of money they could make playing 'pleasant' music that Westerners could tolerate against the lack of income playing traditional pieces, and as a consequence many traditional pieces died out within a generation, having lasted for hundreds of years. Whilst the instruments and ceremonies are well documented in art, the music was never written down as everything is learned by rote via a mentor/mentee scenario.

The island has had its share of reasonably famous visitors. Two in particular that I am fond of are the talented German Primitivist artist, Walter Spies, whose influence steered art in Bali at the time; and the wonderful composer Colin McPhee, who also wrote an excellent insight into his time on the island called *A House In Bali* which is a first-hand account of his experiences both musically and societally. It is one of the best books I've had the good fortune to read and thoroughly recommend it as an excellent starting point for further research in true bedtime-reading style.

Modern day life sees many of the older traditions from the last two hundred years survive, but it is also a holiday destination with wonderful beaches and surfing. Gamelan orchestras can be found everywhere and many hotels have a small band to entertain the guests.

- **Spiritual links**

Bali is a Hindu island with a clear and present Animism influence. This means that all things contain a spirit and should be respected. Colin McPhee details an aspect of this in his book *A House In Bali* when he digs up a bush on his property that everyone dislikes. Given it bordered the cemetery, mild uproar was created leading to a full-blown ceremony to be negotiated to apologize and purify the area ready for a new border to be established. This involved sacrifice, a feast, guests and more importantly a Gamelan orchestra with music.

Funerals, especially a state funeral, are huge affairs. With a Hindu belief in rebirth, they do not see death as the end. The extravagance of a funeral is in direct correlation to the importance or caste of the person who has died. Larger and larger portable pagodas may be constructed and carried through the street with the body inside before it is set alight and then the ashes distributed.

To be cremated in the same ceremony as a person of major importance is considered fortuitous and it has been known for lesser royals and many commoners to hold off cremating bodies in order to do it at the same time as an auspicious event. When Tjokorda Istri Niyang Muter, the sister of the last king of Ubud, was cremated in 2004 over 50,000 people attended the ceremony and well over 50 other bodies were cremated also.

Each Gamelan orchestra has a large gong as its central and most important part. It is believed that a spirit or dragon lives inside the gong and guards the orchestra at night. Offerings must be made to the gong before rehearsals and performances and this can include flowers and food. Traditionally you should only enter the orchestra from the sides, not the front, and should never step over an instrument in fear of breaking the strings that extend invisibly up to the heavens. Footwear should also be removed before a performance.

When a new Gamelan is delivered, it is tradition to give it a naming ceremony. For a smaller Gamelan a name such as ‘Bright Lotus’ may well be suitable,

whereas a grander Gamelan may have a name such as 'The Venerable Spirit of Perfection' such as that held at the Southbank Centre, London.

Many of these traditions are easy to adopt in a classroom setting and for regular after-school clubs these idiosyncrasies are well worth engaging with to give the students are real sense of respect and ownership over the orchestra.

- **Context and delivery**

Gamelan music is inseparable from daily life in Bali. Traditionally street districts (banjar) or small villages would have their own Gamelan orchestra in their community centres or designated canopied area, the temples would have their own orchestra (some with revered instruments that will only be set up and played on specific occasions of merit), dance competitions and dramas will be accompanied by a Gamelan orchestra, Wayang Kulit shadow puppet plays will have a Gamelan orchestra accompanying them, hotels and larger restaurants will have a Gamelan orchestra… absolutely everywhere the haunting music will be present.

Historically men would play the instruments, although this is more relaxed nowadays. Conversely, dance and drama are not restricted to the women. The instruments used are mainly struck tuned percussion in the form of gongs, pans and metallophones, but there are also cymbals, drums and wooden flutes called Suling.

A performance piece called Kecak has also developed which is based on the monkey chant from the Ramayana and is mainly voice based.

Gamelan music does not have to be the centre of attention in a performance and it is perfectly acceptable for it to be present at background music and to have players wander in and out of the orchestra in more informal performances or at lunchtime in a hotel!

- **Tourism influences**

The advent of tourism affected Balinese music greatly. It is documented that the traditional pieces that were played pre-1900 or so were aggressive or erratic and difficult for Westerners to follow. Quite astutely the local Balinese performers recognised that more paid commissions would be forthcoming from the visitors if they were to write and perform music that was more palatable. With music being learned by rote or through an apprenticeship system, the older pieces died off with the older players. Even master teachers who retained vast amounts of music in their heads could not re-teach it all for posterity as less and less groups were interested in commissioning them to do so.

The Kecak monkey chant also became a favourite. It requires a huge cast of male performers, but is effectively cheap to run and can last around an hour.

With the advent of Westerners visiting for pleasure, documentation of events began and people started to notate the music that they heard using a cipher system. Whilst useful, it is a little amusing to know that each particular orchestra is tuned to its own Gong Ageng, meaning the tuning and the performance of any Gamelan is usually unique to that set. As a consequence it makes more sense to document the music using numbers and relative pitch rather than absolute named pitches.

- **Reasons for performing**

It cannot be stressed enough how embedded Gamelan music is to Balinese culture. The community groups will rehearse at least weekly for the enjoyment of it all. In turn they will prepare for competitions against other groups. These competitions may well be part of a bigger event that will require music for plays and dances. In the evenings the shadow puppet theatres will have a Gamelan orchestra providing all of the incidental music to the show.

In the larger hotel foyers, or even outside under dedicated canopies a Gamelan may be played at least at lunchtime and possibly for many hours to entertain the guests or possibly to accompany people eating nearby.

Religious ceremonies will likely involve gamelan in some respect and will be played throughout the whole of the festival, maybe for two or three days straight with different performers, down to possibly a single performer playing a reserved slow melody throughout the night time hours. Music is used to communicate and pay tribute to the spirits.

- **Influences on other cultures (Minimalism, Spies, Reich)**

Across the islands and surrounding areas of Indonesia and Malaysia several similar types of music with some similar instruments are found, but nothing as unique as that of Bali. Several composers in the West have been heavily influenced by Gamelan music, notable;

Walter Spies lived on the island for a significant period and documented life there as well as writing an authoritative guide to the music entitled *Music in Bali*. He wrote several pieces of piano music that were heavily inspired by the structures and melodies of the island, whilst retaining a Western touch.

Benjamin Britten encountered McPhee in 1939 and played a few of his transcripts with him at the time on piano. In the 1950s Britten came across more Gamelan and Japanese influences leading to his composition of several clearly authentically influenced works.

Steve Reich studied Gamelan and West African drumming and was intrigued by the loops and rhythms involved. It had a structural influence upon his approach to what is now known as Minimalism.

The Instruments

The following information is presented in a broad sense. There will be variations in technique from place to place, and the expensive ornately-carved, gold-leafed instruments will have very expensive metal bars honed to perfection to create their sound. The generic processes remain fairly similar.

- **Gongs**

The gongs are the most important aspect of the Gamelan orchestra. The largest gong pitch is fundamental and the rest of the orchestra is tuned in context to this one instrument.

The gong is constructed out of a kerawang, a copper/tin mix, which is heated, melted and cast. The result is beaten and folded back on itself to create a large resonant gong with a protruding boss section in the centre, which is where it should be struck when played. Holes are drilled into the gong for rope attachments so that it can hang on a wood or metal frame work either individually or in a larger construct with other gongs horizontally.

The Gong Gdé or Gong Ageng is that largest of the gongs and is used to mark the end of a larger pattern of music. A medium-sized gong called a Kempul marks smaller waypoints in the music and the Gong Kethuk smaller still.

- **Metallophones**

There are many different metallophones found in a Gamelan. Essentially they are all wooden constructs with bamboo pipe resonators placed directly under suspended metal bars. The bars are cast using the same kerawang as the gong

and made in a similar manner. Once poured into the mould and cooled the bar is hammered into shape and then shaved down to the correct pitch using metal lathes. They may be compared against a master set of notes, or customised to the new gong when a whole orchestra is created.

The metallophones have several names, dependent upon their size and origin, and these include Peking, Saron, Demung, Kantilan, Ugal, Jegog, Jublag, Pemade and Gender.

- **Ceng Ceng**

Ceng Ceng are hand cymbals which vary in size. The handles are very decorative, usually with some sort of tassel or pom-pom effect. The metal used for the cymbals varies on price but can be bronze, iron, kerawang or cut sheet metal.

- **Suling**

The Suling is a vertical bamboo flute which has a notch cut into the mouth piece and a sliver of thinner bamboo wrapped around and tied in place to leave a mouth-hole to control the air-split which produces the sound. Holes down the flute are present and lower notes are produced by holding these shut. There are several sizes of Suling which allow for a great range to be covered by several people. Quite often the Suling will follow the main melody of the piece being performed.

- **Bonang**

Bonang pots are made in a similar manner to the gongs, but hammered deeper. Several pots are suspended on a wooden rancak together and are played with wooden sticks that have string wrapped around one end. The combination of soft string hits and sharp wooden hits can lead to some very versatile melodies being created.

- **Kendhang**

The Kendhang is a double-ended drum which utilises goat skin for the heads. Leather strapping is woven back and forth between the two heads which also makes use of solid rings to tighten and pitch the tuning. The wooden shell is nangka, or jackfruit, and is hollowed out on the inside to form a negative hourglass.

- **Angklung**

Anklung are a separate instrument set to Gamelan but are worth mentioning as they are found all over Bali and Indonesia. They are made of bamboo and consist of a frame and a tube suspended on a strut or arm so that it can move freely. When a particular note is required, the arm is shaken to produce a continual pitch as the decay of the sound is very short. The pitch produced is dependent on the size of the bamboo pipe at the base of the strut. Many different configurations exist from full chromatic rigs for one person to perform with, down to more traditional single-note hand-held versions which require several people to work together to create a melody.

- **Kecak**

The Kecak is a wonderful performance piece that came about in the early 1900s. In its way it was a response to Victorian tourism to create a dance and musical performance piece for part of the Ramayana but it also has links back to exorcisms and other aspects of chant work.

The piece itself involves no instruments, it is all male vocal with around 80 or so participants, but the number does vary. Each is topless and has a chequered black and white sash around their waist. Repetitive rhythms are spoken mainly using the word 'cak' which is pronounced as 'chack'. Each group of men has a different rhythm to chant but collectively the whole group wave their hands and sway in time in response to the leader's shouts. The idea is that they are imitating the monkey army in the Ramayana.

For a focussed, but rambunctious class, this sort of activity could be great fun to do!

Tuning Systems

The tuning and scales of a Gamelan are important and essential to the very nature of the music. There are two main tuning systems used, called Slendro and Pelog. The Slendro system uses a five note (pentatonic) scale and the Pelog system use a seven-note scale. Whilst Pelog is numbered '1, 2, 3, 4, 5, 6, 7', Slendro is labelled '1, 2, 3, 5, 6' with larger gaps for the missing notes of 4 and 7. A Slendro can be created from a Pelog, but it doesn't follow that it must be.

The instruments of a Gamelan are tuned as a set and are unique to each individual orchestra. This being the case it is not usually possible to transfer an instrument from one Gamelan to another, as the tunings will not match. It is also the case that there are no standard notes that are used within the five-note scale and so the pitch of each note and intervals between each note will also differ between different Gamelans.

That said, the music itself will structurally be fixed in place, so a composition on one orchestra will sound slightly different when played on another, but the shape of the melody and general feel will remain intact, even with more drastic alteration such as a perceived alteration from major to minor.

The Balinese do not tend to write down their compositions, and as such the movements are learned by rote in an apprenticeship fashion. With the patterns learned, the performer can play it on any gamelan.

There is a methodology of writing down gamelan music that tactfully avoids pitching and this is called cipher system. Each note is assigned a number instead of an absolute pitch reference. This way the number patterns are learned and documented without having to worry about the actual tuning of the melody.

General Technique

- **Andy Gleadhill books**

Andy Gleadhill has produced *Andy Gleadhill's Indonesian Gamelan Book*, a wonderful resource for non-specialist class teachers and these also provide very useful support for music specialists who are teaching Gamelan for the first time. The book all the basics (technique, structure, warm-ups, cipher notation) and gives a suggested ten session breakdown approach to teaching the content. Also included are ten different compositions, three traditional and three composed by himself, as well as teaching notes for each. It is an excellent starting point for the practical aspects of Gamelan performance.

- **Gamel technique**

All of the metallophones are played by using a gamel to strike the metal bars. The sound then resonates in the bamboo tubes beneath. It is easy enough to hold a hammer and hit something, but there are good habits and bad habits that we all fall into. Gleadhill advises the following;

'Grip the mallet between the pad of the thumb and the first joint of the index finger. Your wrist should be turned inwards with your palm facing downwards. You need to hold the beater towards the bottom end of the shaft with the rest of your fingers curled in a row along the stick. Try to leave some of the bottom end of the shaft protruding from your palm to create a good balance and so the action end of the beater is not top heavy. Keep your elbow slightly raised up and away from your body. When you strike the note keep your forearm still and move your wrist as if you are flicking a drop of water from the end of the beater. Do not let the beater stay in contact with the note, but quickly return to a position just above the instrument. It may take a little time to master this playing technique but it will help if you practise using the simple warm up exercises in Chapter 11, starting slowly at first and gradually increasing speed as you become more confident.'

Excerpt from Andy Gleadhill's Indonesian Gamelan Book

The water flick technique is a good action to focus on, as it is that swift whip-like action that allows the note to ring out loud and true.

- **Muting technique**

If you listen to various examples of the Gamelan being played then you may have noticed that there is only a single note being played at any one time on the instruments and that there is no overlapping. This is achieved by muting a note when the next one is played. This is a concept that some people develop straight away, and others take a while, but it really tightens a performance when everybody can master this technique.

Using the hand that does not have the gamel (normally the left) the performer firmly pinches the bar that is playing at the exact moment that the next note is hit. In some instances it feels as if the left hand is following the pattern on the right identically, but slightly delayed. For the most part this is the case, but the technique is most effective when the performer stops thinking about the process and allows instinct to take over.

- **Gong technique**

The gongs appear easy to play, and they are so long as you are assertive in a firm but calm manner. The beater must be struck firmly onto the protruding boss and allowed to bounce immediately off again. It does not need to be hit that hard, and the aim is to create a soft low rumble of a sound without any crashing overtones. If you create a bright shimmering sound then you have struck the gong too hard. The skill lies in making sure that all of the gongs being played in the sequence are of equal volume throughout.

- **Drum technique**

The Kendhang is positioned either on the lap of the drummer or in front of them. They need to be able to easily reach both heads of the drum as both are used during performances. As with many hand played drums there are a number of ways to get a sound out of them including using slaps with the whole of the hand as well and smaller strikes and taps using fingertips at the edge of the drum. As the drum is closed at both ends, additional tones can be produced by holding one skin whilst playing another.

Cipher System

Western score notation is a convention that we accept as normal to us and we can appreciate its accuracy and versatility. Western music, however, is extremely well planned out overall, and is usually performed in exactly the same manner each time so as to remain accurate to the intentions of the composer.

Music in other areas around the world does not necessarily follow the same performance conventions as we do. Add in the fact that some of that music is learned by rote or via apprenticeship instead of documented and the whole process becomes muddy.

Gamelan has an added constant contradiction in its music in that each orchestra is tuned slightly differently dependent on their Gong Ageng. No two traditional orchestras sound the same but the music performed will maintain the same shape.

Colin McPhee has transcribed the music and concepts that he observed using Western score notation with regards to the specific Gamelan orchestras that he was observing. In places he gives tonal drift charts to indicate how far the notes are from a Western discrete diatonic pitch. Whilst useful for transferring across to Western instruments (piano especially as it has a similar versatility required of such music) it is less useful for easy reading to play on another Gamelan orchestra.

Cipher system is used in many countries with some variations, but essentially they all translate the same information in the same way. The basic premise is that the discrete note names are replaced with numbers. The advantage here is that the shape of the melody is retained, but the actual specific pitches are not written. An example of such a system that you may be familiar with is guitar tab. The numbers represent the frets that are pressed down, but by putting a capo on a guitar you can change the key of the music and still count up the correct frets from this new ‘zero’ fret that the capo has created. The shape of the melody is retained as everything has moved relative.

Numbers are relative. Unaffected numbers are used to represent the normal range, or middle pitches of a piece of music. By adding a dot above a number you can indicate that it is the next octave up. Two dots would be two octaves and so forth. The same is true for dots below representing octaves below. The process is quite intuitive.

Other symbols can be used for ease – placing a dot above a number in a document such as this is not the easiest thing to engineer, but a substitution for demonstrating cipher would be to use commas and apostrophes after the numbers.

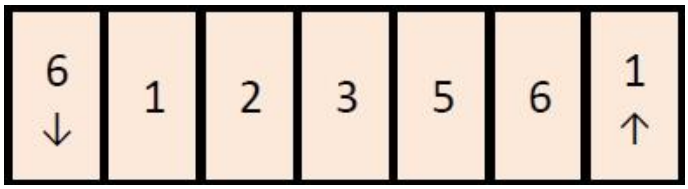
Two Octaves Higher	1''	2''	3''	5''	6''
One Octave Higher	1'	2'	3'	5'	6'
Normal Range	1	2	3	5	6
One Octave Lower	1,	2,	3,	5,	6,
Two Octaves Lower	1,,	2,,	3,,	5,,	6,,

Within *Andy Gleadhill's Indonesian Gamelan* Book he uses arrows pointing upwards and arrows pointing downwards to indicate a higher or lower octave. All methods represent the same core concept.

Two Octaves Higher	1 ↑↑	2 ↑↑	3 ↑↑	5 ↑↑	6 ↑↑
One Octave Higher	1 ↑	2 ↑	3 ↑	5 ↑	6 ↑
Normal Range	1	2	3	5	6
One Octave Lower	1 ↓	2 ↓	3 ↓	5 ↓	6 ↓
Two Octaves Lower	1 ↓↓	2 ↓↓	3 ↓↓	5 ↓↓	6 ↓↓

Note that we have only used numbers 1 2 3 5 and 6 here. Gamelan has two possible scales available. One is called Pelog which has seven notes (1 2 3 4 5 6 7) and the other is Slendro which contains five notes. There tends to be a larger gap between two areas of notes similar to the omission of notes 4 and 7 in a Pelog scale. A Pelog can be played on a Slendro scale, but it does not have to derive from one.

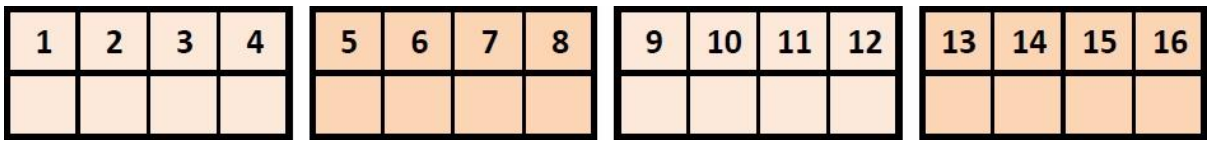
The notes of a seven key metallophone tend to be;



Chinese music has an additional system involving lines, which indicate the length of a note played. Multiple shorter lines represent shorter notes. This does have the advantage that the music can be written as a continuous stream of digits, but with music such as Gamelan where it is given that notes last as long as possible (Gong) or are naturally short (Kendhang) or until another note is played (metallophones) it isn't the most efficient way of showing rhythm.

For Gamelan we fall onto a hybrid system that uses grid notation to show the note lengths and timings of the notes.

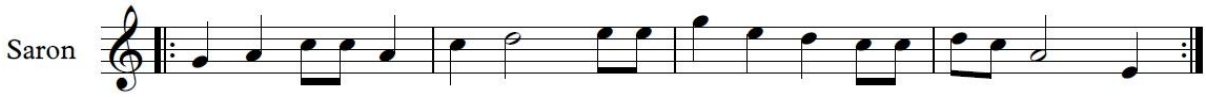
Grid notation is straightforward to follow. In our case we create a grid that has two rows and sixteen columns. The top row contains the number of beats (1 to 16).



The bottom row tells us which note number we should play.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Saron	1	2	33	2	3	5	0	66	1 ↑	6	5	33	53	2	0	6 ↓

This rhythm could also be notated in Western score notation as this, but to highlight the versatility of cipher system, the Western score notation has fixed pitches and would require entirely re-writing for any key changes;



The beat numbers 1 to 16 act as a unifying guide to ensure that all performers are in time with one another.

With this basic system in place you can add or remove whichever instruments you require. Should you need a longer melody then you can alter the guide rhythm to contain as many or as few beats as you need. An entire new section can be written on a separate page and so forth. If you need to have smaller notes briefly played in the space of a beat then you can fill the box with two numbers in order. This method of notation is extremely versatile.

- **Generalised musical structures**

The music is largely cyclic in nature meaning that a melody or cell is repeated over and over. The nature of this music means that these cells can develop over time, mainly through the use of layering and variations before moving to another cell and so on. The performances are not strictly dictated in their performance like Western music, but are more reactive to what is going on and the feel of the piece. When accompanied by a dance for instance, whoever is leading the orchestra will be intently watching the dancer ready to change the music when the dancer moves on to the next section.

Compositions normally start with an introduction called a Buka which is played by the metallophones and the drums.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Saron	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Gongs	0	0	0	0	0	0	0	0	0	0	0	3	0	2	0	1

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Kendhang	0	0	0	0	0	0	0	0	1	1	1	2	1	1	1	12

This leads into the main core melody called a Balungan. The medium pitched metallophones will play the main melody throughout and the lower metallophones will play a reduced part that generally reinforces every second beat. The high metallophones will play Sekoran, which are decorative melodies played above. This can be as simple as double-tapping each of the melody notes or be a complex interlocking counter-melody known as a Kotekan.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Peking	11	22	11	22	33	55	33	55	1 1 ↑↑	66	55	33	6 6 ↓↓	11	22	11

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Saron	1	2	1	2	3	5	3	5	1 ↑	6	5	3	6 ↓	1	2	1

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Demung	0	2	0	2	0	5	0	5	0	6	0	3	0	1	0	1

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Gongs	0	0	0	3	0	2	0	3	0	2	0	3	0	2	0	1

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Kendhang	1	1	2	1	1	1	2	1	0	1	0	2	0	1	0	12

The Gong Ageng tends to be played on the final note of the sequence and the other gongs mark other end sections within (for example the medium gong, the Kempul, could signify the middle of a sequence and the small gong, the Kenong, could indicate the fourth beat of each group of four beats. For example;

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
0	0	0	3	0	0	0	2	0	0	0	3	0	0	0	1

1 = Gong Ageng 2 = Gong Kempul 3 = Gong Kenong

Other developments can be added in at this point including tempo variations bringing the music up to a faster pace and later suddenly down to a crawl. As the music draws to a close the final section is played, the Suwak. This is based upon the main melody and usually has all of the metallophones playing in synchronisation with each other, followed by a final gong hit and a final metallophone note.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
M'phones	1 ↑	6	5	3	6 ↓	1	2	1	0	0	0	0	0	0	0	1
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Gongs	0	0	0	3	0	2	0	3	0	0	0	1	0	0	0	0
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Kendhang	1	1	2	1	1	1	1	12	0	0	0	0	0	0	0	0

- **Leading a gamelan group**

Whilst it can seem daunting to have all these new instruments in front of you, the two most important things when you are just beginning your Gamelan

group is firstly to practise ahead of teaching any particular technique or skill, and secondly to admit your short comings. Demonstrating good technique and fluency is the best way forward, but when you are at your current limitation it is useful to explain to a group what you are trying to achieve and how you are making progress to get there. It is possibly that the students will overtake you, and that is fine; with their performance skills at a high you can concentrate on structure, direction and composition.

You can lay out the Gamelan orchestra as you see fit, but it does make sense to have the gongs at the rear furthest from you and the Kendhang in the middle so that all of the performers can hear the under-pinning rhythm. Group similar-sized metallophones together so unify the separate sounds and to allow performers to look sideways at each other if the need assistance. It is acceptable to group them to the left or right, or in rows; however you choose the uniformity will look impressive and help the sounds to blend coherently. If you have a set of Bonang it may be worth considering either having them to one side, or across the entire front row as they are visually impressive.

As for your part as leader, it is often the case that in Western music the conductor will sit at the front. This is acceptable, and also useful for giving signals with direct eye contact to each performer, but when the group become competent you may wish to consider sitting off to one side.

With a fledgling group then you may wish to pick a mid-range metallophone to have as your guide instrument and can use this to assist anyone who requires guidance mid-performance. It is fairly common to have an Ugal, a low, ten key metallophone as a guide instrument, or alternatively you may choose to plant yourself in the middle with a Kendhang. It is important to find out what works for you and your group. You have a lot more freedom with this style of music than you probably realise.

From the start, try to get the students to learn in the traditional fashion of by ear and memory alone. This will set them up better in the long term.