SCIENCE-TECHNOLOGY ANALYSIS ON THE USE OF *GENTA UTER* IN HINDU RELIGIOUS RITUALS

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Abstract

This article traces the correlation of Genta Uter in yadnya ceremonies using a science-technology perspective. The news of Genta Uter or singing bowl through the phenomenon of the 'rain handler' of Moto GP Mandalika made Genta Uter increasingly popular, not only among the Hindu community. Genta Uter, as one of the means of ceremonies, has been carried out for a long time and has become a mandatory and traditional standard. The use of Genta Uter certainly has a variety of religious meanings in addition to being a legacy of tradition, which can positively impact the environment. Using the Matlab application, they discovered a rational justification for using Genta Uter as a tool for Hindu yadnya ceremonies through a quantitative descriptive approach with experimental test methods based on Fast Fourier Transform (FFT). Genta Uter's voice is positioned as a positive voice with positive energy that can be compared to Western Classical Music such as Mozart and Beethoven, thanks to the acquisition of Genta Uter's sound in various sizes and durations. The Genta Uter sound, which has the qualities of a joyous sound and positive energy, makes it a sound that can promote calm and relaxation, which can promote health in living things so that it can spread positive vibrations throughout the surrounding area.

Keywords: Genta Uter; Religious Rituals; Hindu; Science-Technology.

I. INTRODUCTION

From a physics perspective, the sound is defined as a longitudinal wave that travels through a specific medium. The vibration produces sound, which is then amplified by a sound system so that it can be perceived by the human ear (Kustaman, 2018). The Indonesian Dictionary defines sound as anything that can be heard (audible) or recorded by humans. Each sound has distinctive qualities that can be observed in its frequency, amplitude, speed of propagation, reverberation time, and other aspects. Based on this sound, information can be analyzed and applied to various fields, including medicine and health.

The impact of sound on psychology, health, and other scientific fields is a recent area of study for many scientists. Research on the impact of relaxation and music therapy on the psychological symptoms and depression levels of schizophrenia patients was conducted by Kavak et al. (2016). The findings of this study demonstrated that music therapy and relaxation training were effective in reducing depressive symptoms and psychological symptoms in schizophrenic patients. Wang et al. (2020) research on sound therapy for tinnitus in adults was part of a more extensive study on the benefits of sound for health. The outcomes demonstrated that the therapy was effective in effectively suppressing tinnitus. According to Yuniartika et al. (2019), music therapy can help schizophrenic patients in mental hospitals feel less anxious. According to his research, the therapy uses a variety of soothing classical music tones to reduce anxiety.

Bali's Hindu community strongly connects to places that use sound or audio components during ceremonies or yajnas, which are known as pancanada or pancasuara. Pancanada or pancasuara is five voices or sounds in Hindu religious ceremonies in Bali that deliver the procession of religious rituals from the beginning to the end of the yajna ceremony. Pancasuara has magical qualities that can energize the environment in addition to serving as entertainment and a complement (Donder, 2007). The pancasuara, according to Kartawan (2005: 182), are the five voices required to be present at each yajna ceremony. The sound of

the genta is one of the sounds in the pancasuara, or pancanada, in Hindu religious rituals in Bali. The Genta, a sound-producing object used by the pinandita/priest to carry out the yajna ceremony, is one of the crucial tools in Hindu religious rituals. Every writer uses the Genta's sound to accompany the mantra, so it can be used as a sign that the yajna is being performed. Genta's voice already represents various voices, so it can be said that Genta's voice is Brahman's tone/voice (Gunawijaya & Putra, 2019). The vibration of the sound of Genta or Bajra is a copy or imitation of the universe's first vibration, which was created by the first sacred script, AUM or OM. This vibration pierces space and time's silence. AUM or OM is a representation of the initial energy that is unabated and serves as a representation of God. Because the vibration of the sound of the genta is similar to a carrier wave, which is in harmony with the vibrations of the universe and the vibrations of the small universe (microcosmos), or the spirit realm of each person, the sound of the genta will help us focus (Donder, 2007). PHDI Klungkung, quoting from the Bali Post page on March 29, 2020, asks the priests to voice Genta simultaneously to send out good vibrations to the natural world to prevent epidemics and natural disasters. The sound of Genta is believed to create a sound that can provide harmonization and inner and outer peace for the Hindu community in Bali.

Research on the Genta's sound has been carried out by Gunadi et al. (2019). The sound frequency of Genta's voice is determined after analysis and extraction of his voice. The two types of Gentas used in the study were Uter and regular worship Gentas. Based on the fundamental frequency pattern and the prominent frequency, the two types of Gentas have different characteristics. The Genta Uter's fundamental frequency is between 750 ± 280 Hz, while the Genta's is between 510 ± 250 Hz. This frequency demonstrates that the Genta Uter tone is lower than the regular Genta tone. Two varieties of Genta produce audio sonic sound at a lower level. The Genta's sound may be connected to the sound that's thought to promote relaxation.

Genta Uter is a name made up of the primary words Uter and Genta. The word Uter means circle, while Genta refers to a sounding

instrument used by priests Shiva, Bhuda, and Rsi Bhujangga (a Hindu holy man) in conducting religious ceremonies (Bali-Indonesian Dictionary Compilation Committee, 1978). Genta Uter is a Genta that can be rung by rotating or circling the genta's edge with the mallet. Genta Uter is one of the Panca Genta that the Priest (Rsi Bhujangga) uses when performing the Bhuta Yadnya ceremony. Genta, Genta Orag, Sungu, Ketipluk, and Genta Uter make up the in question Panca Genta. The Genta Uter sound was chosen for this study's material object due to the need for its use, which is becoming increasingly prevalent in Hindu religious rituals where it is used in addition to the ordinary genta. The Genta Uter will be the centre point if the five tools are arranged according to the cardinal directions. Judging from how to ring it circularly/rotationally, we get a circle. The circle represents the empty number "zero," which has no value. In Hinduism, the word for empty is windu. In and of itself, Windu represents santih, sunia, or heaven. In order to achieve that holiness, a vessel tailored to each individual's shape and personality is required.

The researcher wants to learn more by examining the acoustic characteristics of the sound of Genta Uter used in Hindu religious rituals based on the studies that have been done on the material object of the sound of Genta in those rituals. In order to find scientific justifications for the use of Genta Uter in Hindu religious rituals, it is also essential to determine what sound pattern the Genta Uter sound produces. Researchers are attempting to establish a connection between the sound associated with relaxation and the sound of the Genta, particularly the Genta Uter. The voice of Genta Uter is extracted using three sound features—sound frequency, sound amplitude, and sound intensity (decibels)—to demonstrate the claim. The results of the extraction are contrasted with those of comparative sound extractions, the findings of which are thought to provide a scientific justification for the use of Genta Uter in Hindu religious rituals.

II. METHOD

In order to conclude the research findings, this study employs a series of experiments to describe real-world phenomena to determine the influence or relationship between two variables. The first variable is a sound sample of Genta Uter's voice that is analyzed using Matlab software to determine the sound characteristics of Genta Uter, including the sound's primary frequency, composes frequency (prominent frequency), its sound amplitude, and its distribution of sound energy. The second variable is a comparison sound that is thought to have positive energy and will be compared to the extracted Genta's sound. A recording studio was the research location for capturing Genta's voice on tape. The field of study for this study is signal processing, which includes all signal processing involving digital signals. The incoming signal needs to be processed to be displayed, analyzed, or changed into a different signal type that can be used for various tasks.

The sound of Genta Uter in wav format with three different time durations—5 seconds, 10 seconds, and 15 seconds—was used as the primary sound sample in this study. Four sound samples with durations of 5 seconds, 10 seconds, and 15 seconds were used to compare sound samples; these sound samples were thought to have positive energy. Genta Uter's sound editing results are sampled to create a discrete signal expressed in Hertz (Hz). The sampling was calculated using the Nyquist. According to Nyquist, the sampling rate is more significant than twice the analogue signal's highest frequency. The method used in this study involved Matlab's Fast Fourier Transform (FFT) function in extracting the sound characteristics of the Genta Uter sound and the comparison sound, which included up to 4 sounds thought to have positive energy.

The first sound that was acquired for this research was Genta Uter's sound, which was recorded. Sound is recorded and then stored as a data file as a sound (wav). The wav format is used because it makes it easier to conduct further analysis. Preprocessing the data in the second stage aims to equalize the input voice signal and make it simpler to process. Sound editing, sampling, normalization, signal cutting, frame

blocking, and windowing are all parts of the preprocessing. Processing is the third stage, where sound features are extracted, particularly those related to frequency and amplitude, using the Fast Fourier Transform (FFT), and decibel (dB) measurements are sought after. Based on these acoustic characteristics, a comparison between the Genta Uter sound and the sound shown to have positive energy will be made in the fourth stage. In order to produce the sound features of the sound of Genta, the Fast Fourier Transform (FFT) method is used in this study's data analysis technique to analyze the sound of Genta Uter using Matlab software.

III. RESULTS AND DISCUSSION

One of the facilities used to support the performance of Hindu religious rituals is Genta Uter. The singing bowl that Tibetan religious leaders frequently use goes by the name of Genta Uter, which is also well known internationally. Additionally, the singing bowl, also known as the Genta Uter, has recently attracted much attention in Indonesia due to Rara Istiati Wulandari, a rain handler, using it in a ritual to stop the rain at the Mandalika MotoGP in Lombok. This study will apply a series of experimental test procedures to Genta Uter as a physical object. The findings of this study combine methods from each research phase, starting with a sound acquisition and continuing through preprocessing and processing.

1. Analysis of *Genta Uter* Sounds Features

Genta Uter's voice is captured during the sound acquisition process using a 44100Hz sampling frequency. The small and large Genta Uters can be heard in the clapper's recorded sound. After the sound recording is finished, the results are edited using Adobe Audition software. The best sound samples are selected during the editing process. Analysis of the gentas' sounds using samples of the sounds for 5 seconds, 10 seconds, and 15 seconds.

Preprocessing, normalization, and frame blocking are the three stages of the sound acquisition procedure. Preprocessing refers to the preliminary steps taken before the spectrum's generation. The input signal will be equalized during this preprocessing to facilitate processing. The processes of normalization, frame blocking, and windowing make up preprocessing. Sound normalization comes next after getting a sound sample. In order to maximize the amplitude of the sound signal, noise in the sound must be removed during normalization—the software for normalization processes is Matlab.

The following process, after signal normalization, is the frame blocking process, which is done by dividing the audio signal into frames, where the value of N (number of samples) used is 256 samples representing 30ms of sound with M (space/overlap distance) used is 100. Frame blocking is followed by windowing, which helps to reduce information loss or discontinuities between frames. The Hamming window method is the name of this procedure.

Extraction of features Fast Fourier Transform the primary sound frequency (f0) and three follower frequencies is the first step in the transformation process, which converts the time domain into the frequency domain to produce a learning pattern or test pattern (f1, f2, and f3). The Fast Fourier Transform (FFT) algorithm is used to extract the signal, and after that, the conversion process is used to calculate the solar sound's decibel level. Decibel is a logarithm used to express noise (dB). The decibel unit, used for measurement ease, ranges from 0 to 140 dB. The lowest sound pressure level that humans can hear is 0 dB, while the highest sound pressure level that can permanently harm a person's hearing is 140 dB (Soeripto, 2008).

The next step is to determine the influence or relationship between the two variables to conclude the study's findings after getting the results of the signal extraction from the sounds of the genta and the comparison voice. The first variable is a Genta sound sample that has been examined to determine its characteristics, including its primary frequency, constituent frequency (prominent frequency), amplitude, and the distribution of its energy. The second variable is a comparison sound that is thought to have positive energy and will be contrasted with

the sound—the outcome of taking Genta's voice's sound out.

Based on the outcomes of the Fast Fourier Transform (FFT) signal extraction from the small Genta Uter and the large Genta Uter using sound pieces with durations of 5 seconds, 10 seconds, and 15 seconds with a frame blocking value of 256 frames. From the 256 data collected, 4 data—f0 as the primary frequency feature, followed by f1, f2, and f3 as the follower frequency features—will be taken as samples. The amplitude was sampled using 4 data points, with A0 as the main feature and A1, A2, and A3 as the follower features. The process and outcome of comparing the chime sound and the comparison sound, starting with the sound's primary frequency, constituent frequency (prominent frequency), sound amplitude, and sound energy distribution, are as follows. Tables 1 and 2 below show the results of the frequency and amplitude values of the Genta Uter sound signal.

Table 1. Frequency Value of *Genta Uter*

File Name	f0	f1	f2	f3	Average Signal Frequency (Hz)
Small *Genta Uter* Sound 5 seconds Duration	5	4	6	11	6.5
Small *Genta Uter* Sound 10 seconds Duration	5	4	6	3	4.5
Small *Genta Uter* Sound 15 seconds Duration	5	4	6	9	6
Big *Genta Uter* Sound 5 seconds Duration	8	15	9	4	9
Big *Genta Uter* Sound 10 seconds Duration	8	4	9	3	6
Big *Genta Uter* Sound 15 seconds Duration	4	3	5	7	4.75

Source: Sugianta Documentation, 2021)

Based on the information in Table 1, it is clear that the small Genta Uter's average signal frequency has a range of 4.5 to 6.5 Hz for durations of 5 seconds, 10 seconds, and 15 seconds. While the average frequency of the larger Genta Uter, which has durations of 5 seconds, 10 seconds, and 15 seconds, ranges

from 4.75 to 9 Hz.

Table 2. Value of *Genta Uter* Sound Signal Amplitude

File Name	A0	A1	A2	A3	Average Amplitude (m)
Small *Genta Uter* Sound 5 seconds Duration	4.82	2.9	1.164	0.7375	2.405
Small *Genta Uter* Sound 10 seconds Duration	16.22	10.12	4.645	1.055	8.01
Small *Genta Uter* Sound 15 seconds Duration	26.4	15.85	7.703	1.581	12.88
Big *Genta Uter* Sound 5 seconds Duration	3.795	3.691	3.24	2.923	3,412
Big *Genta Uter* Sound 10 seconds Duration	12.15	10.03	8.717	5.148	9.011
Big *Genta Uter* Sound 15 seconds Duration	25.96	14.28	8.488	7.243	13.99

(Source: Sugianta Documentation, 2021)

The small Genta Uter sound, which has a duration of 5 seconds, 10 seconds, and 15 seconds, has an average signal amplitude length of 2,405 to 12.88 m, as seen in Table 2 above. The large Genta Uter, on the other hand, has an average amplitude of 3,412 to 13.99 Hz and has durations of 5 seconds, 10 seconds, and 15 seconds.

2. Comparison of *Uter*ine *Genta*s and Comparative Sounds

A comparison process involving the comparison sound is used to demonstrate the findings of the analysis process conducted on Genta Uter's voice and the comparison sound. Votes for the chosen comparisons are based on experimental results and earlier studies. For training and testing data, four sound samples were gathered for sound labels with positive energy, such as Mozart and Beethoven's music. Positive sounds

are considered to calm and relax the listener, promoting the health of living things. Positive sounds are frequently used in many disciplines, including psychology, health, and others. According to Yuniartika et al. (2019), music therapy can help schizophrenic patients in mental hospitals feel less anxious. The therapy uses the type of calm classical music, which concludes from the study that the level of anxiety can be reduced from mild anxiety to not anxiety.

According to Chivukula and Ramaswamy's (2014) research, the type of music sound based on hymns from the Vedic scriptures significantly affects the health of roses and the length of their bloom. Chivukula and Ramaswamy (2014) compared sounds made by various genres of music, including western classical music, western rock music, Vedic hymns, and classical Indian music.

Classical music sounds, like that of Mozart and Beethoven, are frequently used in research and are regarded as positive sounds. Beethoven's classical music therapy has been shown in research by Keumalahayati & Supriyanti (2018) to lessen anxiety in mothers who give birth during preoperative sectio Caesar. According to Geraldina's research from 2017, the sound of classical music like Mozart is regarded as positive. Beethoven's classical music has been used in research by Keumalahayati & Supriyanti (2018) to help mothers who give birth via preoperative sectio Caesar feel less anxious.

Based on these findings, Mozart and Beethoven's music underwent the same treatment and process during the sound extraction process as the sound of Genta Uter. Using sound extraction based on the Fast Fourier Transform (FFT), the final stage of sound energy analysis (decibels) follows sound sampling with durations of 5 seconds, 10 seconds, and 15 seconds. Mozart's Eine Kleine Nachtmusik, K. 448 Mozart's Sonata for Two Pianos in D major, Beethoven's Fur Elise, and Beethoven's 8th Symphony are the four pieces of music from each composer that are used as comparisons.

The comparison phase of the four comparison voice samples and the Genta Uter sound was the next step after the experimental sound feature test on the four comparison voice samples. Several tests were used to compare the analysis findings of the Genta Uter sound and the comparison sound. The sound of Genta Uter and the voice of comparison will be compared on several different levels, including sound frequency, amplitude, and sound energy (decibels), all of which are presented in Table 1.

Table 3. Comparison of Sound Frequency, Sound Amplitude and Sound Energy (*Decibels*) of *Uter*ine *Genta*s and Comparative Sounds

File Name	Frequency (Hz)	Amplitudo (m)	Decibel (dB)
Genta Uter Sound			
Small *Genta Uter* Sound 5 seconds Duration	6.5	2.405	28.61
Small *Genta Uter* Sound 10 seconds Duration	4.5	8.01	37.3
Small *Genta Uter* Sound 15 seconds Duration	6	12.88	41.6
Big *Genta Uter* Sound 5 seconds Duration	9	3,412	42.6
Big *Genta Uter* Sound 10 seconds Duration	6	9.011	42.74
Big *Genta Uter* Sound 15 seconds Duration	4.75	13.99	33.32
Comparison Sound			
Mozart Eine Kleine Nachtmusik 5 seconds Duration	3	6.48	38.56

Mozart Eine Kleine Nachtmusik 10 seconds Duration	6.75	8.12	43.89
Mozart Eine Kleine Nachtmusik 15 seconds Duration	3	5.66	39.72
K. 448 Mozart Sonata for Two Pianos in D major 5 seconds Duration	6.75	10.05	43.45
K. 448 Mozart Sonata for Two Pianos in D major 10 seconds Duration	4	3.49	33.6
K. 448 Mozart Sonata for Two Pianos in D major 15 seconds Duration	4.75	3,58	38.32
Beethoven, Fur Elise 5 seconds Duration	6	3.03	32.83
Beethoven, Fur Elise 10 seconds Duration	3.5	12.36	42.7
Beethoven, Fur Elise 15 seconds Duration	2.5	6.33	37.31
Beethoven - 8th Symphony 5 seconds Duration	3	6.18	42.6
Beethoven - 8th Symphony 10 seconds Duration	6.75	8.20	42.74
Beethoven - 8th Symphony 15 seconds Duration	3	2.31	33.32

(Source: Sugianta Documentation, 2021)

The average frequency value of the Genta Uter sound, both small and large, with different sound durations, is shown in Table 1 based on the results of the comparison made between the four samples of comparison sound and the sound of Genta Uter. There is a similarity or closeness to the frequency value between 4 Hz and 6 Hz, specifically for 5 seconds, 10 seconds, and 15 seconds duration with the average frequency value owned by the comparison sound. Thus, it can be said that the frequency possessed by Genta Uter and the comparison sound, which has been believed and demonstrated by research, has positive energy for health, namely the similarity or closeness of Mozart and Beethoven's music. Table 1 also displays the amplitude length of the Genta Uter sound, both small and large, with various sound durations, namely 5 seconds, 10 seconds, and 15 seconds, with the amplitude length owned by the comparison sound having a similarity or closeness, namely with an amplitude range between 2 m and 13 m. Thus, it can be inferred from experimental research that Genta Uter's amplitude has positive energy. The similarity and proximity between the sound amplitude of Genta Uter, tested and compared, and the comparison sound, tested as a sound with positive energy, serve as evidence of this conclusion.

The results of the comparison shown in Table 1 show the average value of the sound energy produced by the Genta Uter sound, both small and large, with a sound duration of 5 seconds, 10 seconds, and 15 seconds, with the average sound energy value, produced the sound of the comparison has a similarity or closeness to the frequency value, which is in the range of 30 dB to 40 dB. Therefore, it can be concluded that the sound energy possessed by Genta Uter and the comparison sound, which has been believed and carried out by research, has positive energy for health and has similarities and closeness with the music of Mozart and Beethoven.

3. Science-Technology Arguments for *Genta Uter*s in Hindu Religious Rituals

Generally speaking, a ritual is a technique (way, method) to practice or sacred habits (sanctify the custom). Along with social and religious customs, rituals also help to create and maintain myths (Donder, xiii: 2017). The uniformity of rituals, both communally and individually, directly affects the survival and stability of civilization. In addition, ritual inheritance can help improve specific types of local culture. Rituals play a significant role in religion.

The three main frameworks known as the Tri Kerangka Agama Hindu, which underlie Hindu religious activities, include ceremonies or rituals now known as acara. Acara is one feature that distinguishes the face of the existence of Hindus dispersed throughout Indonesia, including their diversity in Bali, along with Hindu tattwa and susila. Ceremonial order, also known as upakara or banten, and religious practices are examples of how Hindu people express their emotions and creativity. As a result, various forms of upakara are produced, which can be appreciated collectively and privately.

Understanding the Tri Kerangka Agama Hindu cannot be done without going through rituals or acara; the Tri Kerangka Agama Hindu needs to be understood in stages, from the most concrete form to a more abstract form. So that acara, in this case, plays an essential role as a form of Tri Kerangka Agama Hindu that is most real and close to humans, which can then be continued with susila or behavior to be able to lead to tattwa as abstract philosophical teaching and requires a high intellectual understanding. Rituals or events are representations of customs that tie the present to the past, religious practices that encourage bhakti realization and Hindu devotional practice, and inheritance in the form of ceremonial facilities.

Hinduism views the performance of rituals as a flexible and universally applicable form of holy sacrifice or yadnya. This adaptability is based on the Hindu community's understanding that the desa, kala, and patra concepts form the basis for how the yadnya ritual is carried out. The idea of desa in question is to modify the location of the yadnya ritual, kala is a modification of the ritual's timing, and patra is a modification of the circumstances under which the ritual is performed. The foundation of the desa, kala, patra concept is intended for the execution of rituals that are genuinely based on sincere and sincere feelings, full of joy and wisdom in the process, instead of feelings of burden and difficulty in executing facilities and infrastructure in the execution of yadnya rituals.

Hindu religious practices are carried out according to theological and philosophical principles and on the inheritance left by the ancestors. The word "theology" has many definitions, but all essentially point to the same understanding—namely, the knowledge of God. According to the definition of Hindu theology or Brahmavidya, it is closely related to the fundamental faith and beliefs (sraddha) of Hindus (Widana, 2019). The Hindu belief in the existence of Brahman as God Almighty and the existence of the tiniest spark of Brahman, or atman, as the source of life for all creatures in the universe, is included in Sradha, the theological foundation for Hindu ritual practice. Hindu belief in the existence of the fruit of every behavior or deed done by humans as Karmaphala, which is also closely related to Hindu belief in Punarbhawa, a system of rebirth or reincarnation, and Moksha as anandam condition free from all forms of karmaphala both good and bad karma. The foundation for performing rituals in various forms and engaging in various activities is the Panca Sradhha or the five Hindu beliefs.

Facilities and infrastructure are necessary to execute Hindu religious rituals, or yadnya, which is a way for Hindus to express their sincere feelings. Various significant symbols are also kept in the yadnya facilities and infrastructure following their respective functions. As a visualization of one of the lessons in the Bhagavadgita IX.26 regarding the primary means of ceremonies, as follows, apara bhakti, one of the stages of devotional service that is widely understood by the ordinary Hindu community, still requires many symbols from particular objects.

> Patram puspam phalam toyam
> Yo me bhaktya prayacchati
> Tad aham bhakti-upahrtam
> Asnam prayatatmanah

Translation:

Whoever in prostration offers Me a leaf, a flower, a fruit, a drop of water. I received the offering with love from a pure-hearted person. (Darmayasa, 2015)

These fundamental infrastructures allow for arranging ceremonial tools, or upakara in Hinduism, that serve specific purposes. Even though they derive from the same fundamental sources, the various upakara forms represent various functions that all serve the same purpose—worshiping Sang Hyang Widhi Wasa.

Hindu religious rituals can be performed using the Genta Uter, also known as the singing bowl. Genta Uter is a genta that can be rung by rotating or circling the genta's edge with the mallet. The Genta Uter is a component of the Panca Genta, a necessary tool Ida Rsi Bhujangga Waisnawa in various levels, from Caru Panca Sata to Caru Eka Dasa Rudra, during the muput (procession) of the pecaruan ceremony. The Genta Uter, also known as the singing bowl, appears as shown in Figure 1.

Figure 1. Genta Uter or Singing Bowl
(Source: Sugianta Documentation, 2021)

Genta Snangkha, Genta Orag, Genta Damaru, and Genta Padma make up Panca Genta in addition to Genta Uter. Panca Genta is used to neutralize nature or mechanics and collect the spirits of the lower realms such as tonya, memedi, bhuta kala, and evil spirits that disturb this realm to be cleaned and work for 'nyomya' or initiating evil spirits and spirits of the underworld so that the bhuta nature can turn into God's nature (Sudarsana, tt).

The Lontar Empu Pranadnyana contains the following information regarding the use of Panca Genta:

"...tinabuh genta, genta genti, amuk luput, mwang sangka tekeng bajra uter. Geger Bhuta Kala muang jin samar dete...".

Translation:
The Gentas, orag Gentas, ketipluk, and sunggu (shell trumpets) are sounded, as well as Genta Uters. Bhuta Kala and Jin Samar Dete also cheered.

The quote aims to explain the strength of the sound produced by the five instruments, which can be heard and make the bhuta cheer. The Genta Uter is positioned in the middle as the core of these five tools are arranged following the five cardinal directions in the agem-ageman of Hindu religious rituals. You can create a circle by using the Genta Uter, which rotates and sounds in a circle. The circle is similar to the number "zero," which also means "empty" and has the value "empty." In Hinduism, emptiness symbolizes "windu," which represents inner purity, sunia, and peace. In order to achieve harmony and harmony, it is also necessary to have a container tailored to each individual's shape and character to achieve holiness.

Scientific argumentation has developed into a tradition among intellectuals and even a type of character in modern society (Donder, 2017: 1). Scientific knowledge is meant by the term "science," and empirical sensory boundaries establish it. In the current era of globalization, society upholds positivistic knowledge, which assumes that every question must have a definitive answer, as is typically found through scientific research. The nak mule keto response, seen as a manifestation of an answer's uncertainty or a problem's inability to be explained using scientific principles, is no longer acceptable in today's society. At this point, religion and tradition must be able to offer definitive explanations for all observable rituals and traditions. Although the issue of belief and belief is a religious domain, religious behavior and rituals that can be explained according to human reason, reason and logic will be increasingly believed because the teachings are not merely dogmatic. A firm and conclusive response based on scientific evidence will undoubtedly positively affect religion and tradition.

The sound produced by Genta Uter has positive

sound characteristics, according to the results of the experimental tests and the sound feature analysis done on Genta Uter using the Fast Fourier Transform (FFT) technology method with Matlab. Positive sounds can promote peace and relaxation, promoting the health of living things. Positive sounds are frequently used for psychological, physiological, and other purposes. According to Yuniartika et al. (2019), music therapy can help schizophrenic patients in mental hospitals feel less anxious. Relaxed classical music is used in therapy, and it has been found that anxiety levels can be lowered from mild anxiety to calmness.

According to Chivukula and Ramaswamy's (2014) research, the type of music sound based on Vedic hymns significantly impacts the health of roses and lengthens flower blooming time. Chivukula and Ramaswamy (2014) compared sounds made by various genres of music, including western classical, Vedic, Indian classical, and western rock.

Positive sounds are those associated with classical music, such as Mozart. Keumalahayati & Supriyanti (2018) used Beethoven's classical music therapy to help mothers undergoing preoperative sectio caesar feel less anxious. The gamelan tune tembang kutut manggung, which has gentle and calming strains for the elderly and is a type of slendro-tuned music, was used in a study by Oktiawati et al. (2019).

According to the theory's explanation, it can be inferred that a positive sound is regarded as having the ability to promote peace and relaxation, which can promote the health of living things. The Genta Uter's sound was the subject of experimental tests, which revealed that it was a part of the sound that had favorable sound characteristics and could be compared to Western Classical Music by composers like Mozart and Beethoven. It is no longer accepted as an assumption or myth with the justification of nak mule keto that there are assumptions or myths relating to the use of Genta Uter, which has been shown to boost the immune systems of humans and other animals, to promote peace for the listener, and to have positive vibrations in the immediate environment. Tests that follow positivistic principles and apply to science and technology offer a more palatable explanation for the human mind, which constantly seeks explanations based on human reason and logic. In line with the experimental test on the sound of Genta Uter's voice as one of the tools used in Hindu ritual practices, it also strengthens Donder's statement (2017: 55) that Hindu ritual is not a dogmatic activity or a probabilistic speculative activity whose results are chancy. On the other hand, Hindu rituals are logical practices closely related to the universe's order (the ordering of the universe), phenomena, and events, which sciences can currently explain, like chemistry and physics. This cosmic arrangement is known to Hindus as rtam or universal law.

IV. CONCLUSION

It is very challenging to distinguish between the use of sounds in religious rituals generally, especially for religions based on the local community's cultural foundation. The execution of these religious rituals can paint a realistic picture of the relationship and resonance in each cultural element mentioned by Koetjaraningrat. The Genta Uter, also known as the singing bowl and one of the facilities in Hindu religious rituals, is thought to have the power to emit positive vibrations consistent with the performance of Hindu rituals.

The Fast Fourier Transform (FFT) method and data processing with the Matlab application is used in this study's science-technology analysis of the sound created by Genta Uter. With Genta Uter sound samples lasting 5 seconds, 10 seconds, and 15 seconds, Genta Uter sound was extracted to determine sound acquisition. According to Genta Uter's test results, it was discovered that it has positive energy between 28 and 41 decibels. The test was continued by using tested comparison sounds such as Western classical music of Mozart and Beethoven, giving a measurable comparative picture that there is a closeness of sound frequency, amplitude, and sound energy produced by Genta Uter and other comparison sounds.

The characteristics of the Genta Uter can be identified as belonging to the positive sound group, which can give and spread positive

vibrations to the surrounding environment and living things around it through experimental tests and comparative sound comparisons. Research on the Genta Uter's sound as a tool in Hindu religious rituals demonstrates that the Hindu community's beliefs, particularly in Bali, are not founded on superstitions. The use of numerous facilities in Hindu religious rituals that are directly related to sound or sound is not only justified by the notion that sound is the highest form of tones or melodies in the universe but also by the ability of the sounds produced by the yadnya ceremony to create harmony with the energy waves present in the surrounding environment. Similar to this, and in living things, particularly humans, the sound of the Uterine Genta and other means propagates in superposition and lowers the frequency of brain waves to induce calmness.

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