



Fakulti Seni Gunaan dan Kreatif

**SOUND APPLICATION OF CERAMIC COMPONENT IN CONTEMPORARY
ARTWORK**

LOH CHON HONG

**Ijazah Sarjana Muda Seni Gunaan Dengan Kepujian
(Seni Halus)
2019**

**SOUND APPLICATION OF CERAMIC COMPONENT IN CONTEMPORARY
ARTWORK**

LOH CHON HONG

This project is one of the requirements for
Bachelor of Applied Arts
(Fine Arts)

Faculty of Applied and Creative Arts
UNIVERSITI MALAYSIA SARAWAK
2019

UNIVERSITI MALAYSIA SARAWAK

Grade: _____

Please tick (√)

Final Year Project Report

Masters

PhD

DECLARATION OF ORIGINAL WORK

This declaration is made on theday of 2019

Student's Declaration:

I **LOH CHON HONG, (56482), FACULTY OF APPLIED AND CREATIVE ARTS** hereby declare that the work entitled **SOUND APPLICATION OF CERAMIC COMPONENT IN CONTEMPORARY ARTWORK** is my original work. I have not copied from any other students' work or from any other sources except where due reference or acknowledgement is made explicitly in the text, nor has any part been written for me by another person.

Date submitted

LOH CHON HONG (56482)

Supervisor's Declaration:

I **MOHAMAD ZAMHARI BIN ABOL HASSAN** hereby certifies that the work entitled **SOUND APPLICATION OF CERAMIC COMPONENT IN CONTEMPORARY ARTWORK** prepared by the above named student, and was submitted to the **FACULTY OF APPLIED AND CREATIVE ARTS** as a fulfillment for the conferment of **BACHELOR OF APPLIED ARTS WITH HONOURS (FINE ARTS)**, and the aforementioned work, to the best of my knowledge, is the said student's work

Received for examination by: _____ Date: _____
(Mohamad Zamhari bin Abol Hassan)

I declare that Project/Thesis is classified as (Please tick (√)):

CONFIDENTIAL (Contains confidential information under the Official Secret Act 1972)*

RESTRICTED (Contains restricted information as specified by the organisation where research was done)*

OPEN ACCESS

Validation of Project/Thesis

I therefore duly affirm with free consent and willingly declare that this said Project/Thesis shall be placed officially in the Centre for Academic Information Services with the abiding interest and rights as follows:

- This Project/Thesis is the sole legal property of Universiti Malaysia Sarawak (UNIMAS).
- The Centre for Academic Information Services has the lawful right to make copies for the purpose of academic and research only and not for other purpose.
- The Centre for Academic Information Services has the lawful right to digitalise the content for the Local Content Database.
- The Centre for Academic Information Services has the lawful right to make copies of the Project/Thesis for academic exchange between Higher Learning Institute.
- No dispute or any claim shall arise from the student itself neither third party on this Project/Thesis once it becomes the sole property of UNIMAS.
- This Project/Thesis or any material, data and information related to it shall not be distributed, published or disclosed to any party by the student except with UNIMAS permission.

Student signature _____
(Date: _____)

Supervisor signature: _____
(Date: _____)

Current Address:

**60,JALAN INAI,
TAMAN RIMBA,
28400 MENTAKAB,
PAHANG**

Notes: * If the Project/Thesis is **CONFIDENTIAL** or **RESTRICTED**, please attach together as annexure a letter from the organisation with the period and reasons of confidentiality and restriction.

CERTIFICATION

The project titled **SOUND APPLICATION OF CERAMIC COMPONENT IN CONTEMPORARY ARTWORK** has been provided by **LOH CHON HONG** and has been submitted to the Faculty of Applied and Creative Arts in order to qualify for a Bachelor of Applied Arts with Honors (Fine Art).

Received for inspection by:

(Mr. Mohamad Zamharibin Abol Hassan)

Date:

VALIDATION

It is acknowledged that I, **LOH CHON HONG** accompanied the writing **SOUND APPLICATION OF CERAMIC COMPONENT IN CONTEMPORARY ARTWORK** as part of the need for a Bachelor of Arts and Creative in the Fine Arts Program.

Verified by:

(Mr. Mohamad Zamharibin Abol Hassan)

Date:

ACKNOWLEDGEMENT

First and foremost, I would like to deliver a greatest gratitude to the lecturers and staffs of Faculty of Applied and Creative Arts and also millions of thank you to my supervisor Mr. Mohamad Zamhari bin Abol Hassan. With his support, guide, inspiring and motivate me in every aspect of this final year project, I was able to finish my final year project. Without the supervision and leads from my supervisor, I could have not able to finish my final year project before the due date.

Besides that, I would like to thank Mr. Iran AmriMusoddiq, a music lecturer who in the past months has taught and guided me in using the sound analyzer software. With his support and valuable views, I was able to understand and learn some new things in music. I am grateful for the helps and it's been a great time learning from him.

Finally, I would like to thank to my family and fellow friends who had constantly giving their care and moral support during my breakdown in the attempts to complete my report. Due to their full attention, I was able to proceed with this project with a peace of mind.

ABSTRACT

Ceramic is one of the mediums for the artist to create artwork, and the artwork is not only limit in just a pottery. But many people have their mindset that ceramic artwork will be the artwork present in visual form and a vase like artwork. Combination of sound and ceramic in creating the ceramic artwork had done by the artist before. However, the sound in the artwork is combine without apply the theory of music in the artwork. Therefore, this research come out to identify the way to make the ceramic create better sound, analyse the change of the sound of ceramic and apply the sound in create the ceramic artwork. This research may help the researcher gain the knowledge about the method to create the ceramic with better sound and the researcher have the extra option when create the ceramic artwork which is combine the theory of music in create ceramic artwork.

Keywords: Ceramic, Sound Artwork, Music

TABLE OF CONTENTS

SECTION	PAGE NUMBER
Declaration of Original Work	i
Certification	iii
Validation	iv
Acknowledgement	v
Abstract	vi
List of Table	vii
List of Figure	viii
Table of Contents	ix

CHAPTER 1: INTRODUCTION

1.1 Introduction	1
1.2 Problem Statements	3
1.3 Research Questions	4
1.4 Objective of Study	4
1.5 Significance	4
1.6 Expected Main Finding	4
1.7 Limitation of Research	5

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction	6
2.2 Multidisciplinary and Interdisciplinary	6
2.3 Sound	7
2.4 Percussion	7
2.5 Resonance	7

2.6 Glockenspiel	8
2.7 Artwork with Sound	8
2.8 Tuner	10
2.9 Plaster Mould	11
2.10 Shepard Tone	11
2.11 Shrinkage	12
2.12 Conclusion	12

CHAPTER 3: RESEARCH METHODOLOGY

3.1 Introduction	13
3.2 Experimentation (Primary Data)	13
3.3 Instrumentation (Primary Data)	13
3.4 Information Collection (Secondary Data)	14
3.5 Conclusion	14

CHAPTER 4: RESULT AND ANALYSIS

4.1 Ceramic Strips Sound Experiment	15
4.2 Sound Analyze	18
4.3 Reference Artwork Analysis	24
4.4 Planning for The Final Artwork	26
4.5 Final Artwork	30
4.6 Conclusion	32

CHAPTER 5: Summary and Conclusion

5.1 Summary 33

5.2 Conclusion of Research 34

Reference 35

LIST OF TABLES

Table 1: The Frequencies Ceramic Strips	18
Table 2: Frequency from Note D Octave 4 to D Octave 7	21
Table 3: Ceramic Strips with Nearest Frequency with D Major	22
Table 4: Reference Artwork Analysis	24

LIST OF FIGURES

Figure 1: Solid Vibration (2015) by Olivier van Herpt	2
Figure 2: Splendour Lender (2012) by JelleMastenbroek	8
Figure 3: Klangkörper (2016) by Sanra Sordini	9
Figure 4: Plaster Mould to Make Ceramic Strips	15
Figure 5: Round Shape Ceramic Test Bar	15
Figure 6: Half Cylinder Ceramic Strips	16
Figure 7: Ceramic Test Bar Stand	18
Figure 8: Single Fundamental Frequency Analysis	20
Figure 9: Double Fundamental Frequency Analysis	20
Figure 10: The Sketch for The Final Artwork	26
Figure 11: Early Design Sculpture's Inner Part	26
Figure 12: Design of Inner Part of The Sculpture	27
Figure 13: Sketch of Final Artwork	28
Figure 14: 'Stair' Ceramic Sound Sculpture	29
Figure 15: View Inside the Sculpture	30

CHAPTER 1

INTRODUCTION

1.1 Introduction

When the people say about ceramic, the first image come to mind is pottery. Normally, people think that ceramic is just about the plate, bowl, teapot and kitchen ware, ceramic in fine art also facing this public perception. The researcher likes to explore different ways to create ceramic artwork, which using the sound that created by ceramic. Based on previous ceramic sound artwork created by the ceramic artist is more to concept but not music.

Ceramic is one of the mediums in fine art. Technically, ceramic is made from material which are permanently changed when heated (Beth P., 2017). Multidisciplinary is a trend for nowadays art, but ceramic artist majorities are creating the ceramic artwork in visual form in term of aesthetic. Based on Sara T. (2016), young ceramist experimentation with shape, function and texture is unprecedented. The ways present the work is rarely becoming the main thing that ceramic artist used to consider. In Contemporary Ceramic, the artwork shows also are more to showing the aesthetic of ceramic in visual (Cooper, E., 2009). Besides, the work those 10 contemporary ceramicists that she discussed which is more to the visual aesthetic of the ceramic artwork, such as Contrast Pitcher that created by Brooke T. Winfrey, Small Strip Plate with foot and White Spoon by Bridget Bodenham and Hourglass Planters by Andrew Molleur. That is mean that the now day ceramic is still more to present in visual form.



Figure 1: Solid vibration by Olivier van Herpt

An artwork by Olivier van Herpt named Solid Vibration (Clare. S., 2016) becomes an inspiration for the researcher to have this research which is by combining sound with ceramic is not an impossible thing. Therefore, the researcher intends to do a research on the possibility using sound from parts of the ceramic artwork. The fired clay can create sound when it is hit, Andy F. (2010) say that sound in physical phenomenon, is the vibrations within materials that involve an exchange of energy. By the statement above, ceramic that hit by another medium will create the sound and combination of different sound to form a music. Based on Tom H. (2018), a high pitch sound corresponds to a high frequency sound wave and the low pitch sound corresponds to a low frequency sound wave. Thus, the length of the ceramic will change the tone because of the sound wave will change when the length of ceramic is changed. However, the change of the length of the ceramic and the change of the tone created by ceramic is not constant or formally, so this research is focus on analyzing the tone create by ceramic. Regarding to the solution above,

researcher plan to use the method of experimentation and instrumentation to overcome the problem.

1.2 Problem Statement

The nowadays world is more towards multidisciplinary in arts. The ceramic artwork can be more interesting through creative idea of presentation. In the article of Kelly R.A. (2017) the artists innovate ceramic in an interesting form, but the way to present is still the same, which is in the visual form. Some of the artists use sound in present artwork, but the sounds created by the ceramic are unarranged and random.

Based on Hugo, V. & Mark, I. (2017), the artwork of Jelle Mastenbroek called ‘Splendour Lender’, uses sound to present his artwork. The artwork can be more interesting or more meaningful if the sound created is arranged to what he intended to present.

The artwork that also using sound as the present of the ceramic artwork called Klangkörper by SanraSordini are combination of digital, ceramic and music. Instead having ceramic as audible parts for the artwork, it becomes only decoration parts. The researcher plans to create an artwork that combines the knowledge of the ceramic and the music.

1.3 Research Questions

- a. What is the best way to make the sound of the ceramic better?
- b. How to create sound for the ceramic component that can be identified in note form?
- c. How to apply the tone that created by ceramic into an artwork?

1.4 Objective

In this research, the objectives are:

- a. To identify the way to make the ceramic create better sound.
- b. To analyze the sound for the ceramic component that can be identified in note form.
- c. To apply the ceramic sound in create an artwork.

1.5 Significance

Through this research, scholars will gain the knowledge about the method to create the ceramic artwork with combine the theory or knowledge of sound or music. Besides, the research has extra option when using ceramic as media to create artwork which is combine music or sound in creating artwork.

1.6 Expected Main Finding

- a. This research wants to identify what is the ceramic shape that most suitable for this research to create the sound of the ceramic.
- b. To analyze the tone create by the ceramic by using the professional device or software.
- c. Arrange the sound of the ceramic to form the music scale.
- d. Combine the ceramic and theory of music in creating an artwork.

1.7 Limitation of Study

Several limitations occur in this research, limitation in this research is the location, to make the experimentation or analyze, and it needs a place with less noise and a closed area to reduce the unwanted external frequency and gain more accurate result. Besides, a sculpture needs to be created in a wide place in order for the research to conduct the research.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

In this research, the researcher needs to make sure the process the ceramic sound can be analyzed from the changes of the its sound. Therefore, the researcher searches for books, internet and article on the theory and knowledge of sound and music. Ceramic artwork with sound also need to considered to ensure the researcher is cleared to the applying music or sound in the artwork.

2.2 Multidisciplinary and Interdisciplinary

Multidisciplinary is a famous thing in nowadays' academic world. According to Karri, A.H. (2009), Multidisciplinary is the accomplished through the cooperation of individuals from multiple fields of study who use tools and concepts from their own disciplines applied to a common problem or topic, while interdisciplinary is using the disciplinary knowledge from various fields to enhance understanding of the home disciplines and integrates this knowledge for the purpose of advancing scholarship. Both multidisciplinary and interdisciplinary presence in this research. The combination of the ceramic and sound in create artwork, using the sound and music analyzing software to observe the tone created by the ceramic strips. Involvement of two discipline will be presented in this research. Besides, the researcher creates an artwork which will be that using sound produce by ceramic as the part of work and the sound is arranged and form music, the arrangement is basic on the theory of music and the knowledge regard to sound.

2.3 Sound

Sound is the main thing that focuses on this research, according to Andy F. (2010), if look the sound as a physical phenomenon, as vibrations within materials that involve an exchange of energy. The ceramic hitting each other that making vibration will create the sound and the sound will be record as the tone. The sound used as the main thing to present a ceramic work is the objective that the researcher wants to achieve. Researcher using ceramic test bar to identify the tone of sound is based on the concept of the percussion.

2.4 Percussion

Based on the Walter P. (1955) & Harper C. (2018), percussion defined as the family of instruments in which sound arises from the striking of materials with sticks, hammers, or the hands. Based on the information above, the researcher using the striking of the ceramic to create the sound. The ceramic is hitting with other ceramic to create sound, the concept of the tone create is same as the xylophone (Wiggins, T., & Kobom, J., 1992) and glockenspiel. According Kubik, G. (1965) & David, R.L. (2003) the different length of the same material has the different sound create.

2.5 Resonance

Resonance is a natural frequency at which the system will oscillate if given some sort of initial impulse and then left to vibrate on its own. According Bart, H. (1996), the word resonance refers to an oscillating system's enhanced response to a driving force at or near any of its natural frequencies. Resonance can be a very helpful thing in create the ceramic artwork to enhance the

volume of the sound. When create the ceramic artwork with sound, resonance may can be applied in the artwork to enhance the volume of the sound.

2.6 Glockenspiel

“Glockenspiel commonly known as ‘the bells’, consists of thirty oblong steel slabs mounted in a portable case. When the case is unfolded flat on table, the arrangement of the slabs presents the appearance of a piano keyboard. Each piece of steel is tuned by size so that a chromatic scale is available” by Walter, P. (1955). Therefore, as the steel slabs of the glockenspiel, researcher using the same concept by using the ceramic test bars create with different length from long until short to observe the sound of the ceramic.

2.7 Artwork with Sound

The artist named Jelle Mastebroek is the artist reference of the researcher, because the concept artwork of the artist is almost same with the researcher, just the sound of the artist’s artwork is non-arranged, the artwork named Splendor Lender in Figure 2 that is created by the artist is the example of the combination sound in ceramic artwork. The ‘Ceramics and Sound Exhibition’ also become a reference for the researcher, the concept of the combining sound in the ceramic artwork is not same as the researcher, those artworks are more to visual form and add with the sound element to it (Ray, H. 2008). The aesthetic of the artwork and the concept will become the idea of the researcher when create artwork.



Figure 2: Splendour Lender (2012) by Jelle Mastenbroek

The artwork named Klangkörper (2014), as in Figure 3 created by Sandra Sordini has become a reference of researcher. Klangkörper are digital music instruments which translate melodies into three-dimensional forms. The porcelain objects are painted with patterns of silver lacquer, which works as a sensor: the microcontroller Arduino, hidden inside the object, detects human touch and plays tones accordingly. Following the curves on the vessels with your finger, you'll be able to play parts of famous melodies, like Mozart's "Zauberflöte" or a lullaby by Brahms, or you can simply create your own your own sounds by gently caressing the object.

According to the statement above, the Klangkörper is the artwork that combines digital, ceramic and music. But for the researcher, the identity and the characteristic of the ceramic are lost, it can be better if the characteristic of the ceramic can fully use in the artwork.



Figure 3: Klangkörper (2016) by Sanra Sordini

In Figure 1, *Solid Vibration*, an artwork by Olivier van Herpt named (Clare. V.,2016) becomes an inspire for the researcher to having this research which is combining sound with ceramic is not an impossible thing. Therefore, the researcher wants to do a research about the possibility using the sound created by the ceramic as a part of ceramic artwork. The clay after fired can create sound when it is knocked or hit by other things.

2.8 Tuner

After the firing, the ceramic is using the tuner to observe the tone of it. According Taku, T., & Higo, K. (2006) and James (2017), tuning maybe carried out by sounding two pitches and adjusting one of them to match or relate the other. Several different devices maybe used to produce the reference pitch such as, tuning forks, piano, electronic tuning device and other instrument. Different with others tuning device, electronic tuner can observe the incoming frequency and tuning the sound. According Bozkurt, B. (2012), using the electronic tuner, the

frequency of vibration which is the sound of the ceramic will be record and showed on the tuner, which is the way researcher to find the tone.

2.9 Plaster Mold

According to Bill, J. (2010), the water and the plaster need to weight in a ratio of 0.7 (part for water): 1 (part for plaster), the mold will not strong and easy break if the water contain in the plaster mold is higher than the usual. Besides, according to Gary, C. (2010), making a mold is start by making a good set of adjustable mold boards. The mold board is attaching with the 90° framing bracket and using the C-clamp to lock the mold board with the length of the mold. The weight of the plaster and water need to consider and shake the table after pouring the plaster mixture to bring any air bubbles to the surface and to settle the plaster out, making the top of the mold completely flat.

2.10 Shepard Tone

Based on Haubursin,C. (2018), the Shepard tone is named after cognitive scientist Roger Shepard, the sound consist of the several tone that stack with the different octave on the top of each tone, the lowest bass tone faded in and the higher treble tone fade out, when both tone completely fades in (out), the sequence loops back again. For another word, The Shepard Tone is the barber's pole in sound, the concept of the Shepard Tone is like the illusion of the barber pole, human brain will gets tricked to think that the sound is constantly ascending and descending (when the situation reversed) when human hear at least two tones rising in pitch at the same time.