

IDEALOGY

JOURNAL



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**MUHAMAD ABDUL AZIZ AB GANI, ISHAK RAMLI
MOHAMMAD HAFIZ YAHAYA, NURUL SHIMA TAHARUDDIN
HASLINDA MD NAZRI, MUHAMMAD REDZA ROSMAN
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INTRODUCTION

Idealogy Journal is a biannual journal, published by UiTM Press, Universiti Teknologi MARA, MALAYSIA.

IDEALOGY is a combination of the words IDEA and LOGY whereby the word IDEA refers to any activity or action that can lead to change. On the other hand, the word LOGY refers to the understanding towards a certain group or thought, that is often related to the creation of the idea itself. So, IDEALOGY is a platform for those who have ideas to share in journal form. The IDEALOGY Journal is spearheaded by the Faculty of Art & Design, Universiti Teknologi MARA (Perak), however the scope and theme applied were broadened to cover Arts & Social Science.

This journal is purely academic and peer reviewed (double-blind review) platform. It caters to original articles, review paper, artwork review and appreciation, exhibition review and appreciation, and book reviews on diverse topics relating to arts, design, and social science. This journal is intended to provide an avenue for researchers and academics from all persuasions and traditions to share and discuss differing views, new ideas, theories, research outcomes, and socio-cultural and socio-political issues that impact on the philosophical growth in the contemporary events.

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TABLE OF CONTENTS

EDITORIAL	
Introduction	ii
Editorial Board	iv
Panel of Reviewer	v
Editorial Preface <i>Muhamad Abdul Aziz Ab Gani, Ishak Ramli</i>	1
Editorial Foreword <i>Muhamad Abdul Aziz Ab Gani, Ishak Ramli, Mohammad Hafiz Yahaya, Nurul Shima Taharuddin, Haslinda Md Nazri, Muhammad Redza Rosman, Nizar Nazrin</i>	2
ORIGINAL ARTICLE	
Thematic Analysis of Self-Experience, Cultural Expression and Islamic Expression on Haron Mokhtar's Series of Paintings <i>Alif Haiqal Musa, May Tasneem Nor Adzaman</i>	3-17
The 'Kelingai Motif' in Iban's Tattoo Motif; A Case Study of Kampung Gayau Ulu Pantu, Sri Aman Sarawak <i>Gladys Tagie, Nurul Shima Taharuddin, Noor Aileen Ibrahim</i>	8-16
Adaptation of Malay Folklore Tales (Si Luncai) in Printmaking <i>Adaptasi Kesusasteraan Rakyat (Cerita Si Luncai) Dalam Karya Seni Cetakan</i> <i>Hazrul Mazran Rusli, Abdul Aziz Zali @ Zalay</i>	17-29
Integration between Art and Science: An Art Appreciation of Nyawa Light Exhibition <i>May Tasneem Nor Adzaman, Mumtaz Mokhtar, Alif Haiqal Musa</i>	30-41
Characteristic and Categorization of Monoprint's Among Local Artists in Malaysia <i>Muhammad Abdullah, Mohd Firdaus Naif Omran Zailuddin, Ahmad Khairul Azizi Ahmad, Mohd Nasiruddin Abdul Aziz, Ashraf Abdul Rahaman</i>	42-54
Conflicts Of Characters And The Characterization In Saladin The Animated Series: Analysis Of Intertextuality <i>Konflik Watak Dan Perwatakan Dalam Saladin The Animated Series: Analisis Intertekstualiti</i> <i>Izra Inna Md Idris, Mohamad Saleeh Rahamad @ Ahamad, Md Azalan Shah Md Syed</i>	55-73
Democratic Education in Pondok Educational System: Practice and Implementation	74-85

Demokrasi Pendidikan Dalam Sistem Pengajian Di Institusi Pondok: Pelaksanaan Dan Amalan

Mohd Zahirwan Halim Zainal Abidin, Huzaimah Ismail, Muhammad Yusri Yusof @ Salleh, Abd.Munir Mohd Noh, Paiz Hassan, Ahmad Bakhtiar Jelani, Mohd Anuar Ramli

Students' Understanding of Shia Doctrine: A Study in Selected Religious School in Selangor 86-91

Kefahaman Pelajar Sekolah Agama Terpilih Di Selangor Terhadap Doktrin Syiah

Mukhamad Khafiz Abdul Basir, Suhaila Sharil, Muhd Imran Abd Razak, Ahmad Firdaus Mohd Noor, Mohd Farhan Abd Rahman, Nurul Khairiah Khalid

The Narration Of Keris As A Subject Of Malay Culture Figurative In Rahim Razali's Films 92-102

Pencitraan Keris Sebagai Kiasan Keindahan Budaya Melayu Dalam Filem Rahim Razali

Siti Normala Hamzah, Mohamad Saleeh Rahamad @ Ahamad, Md Azalan Shah Md Syed

Museum and the Agenda of Counter Islamophobia: An Analysis 103-118

Muzium Dan Agenda Counter Islamophobia: Satu Analisis

Ahmad Farid Abd Jalal, Rahimin Affandi Abdul Rahim, Muhd Imran Abd Razak, Ahnaf Wafi Alias, Mohamed Yusuf Ahmad Adam Broughton

The Jewelry Design From Natural Environment Based On Tropical Nature Of Indonesia 119-129

Desain Perhiasan Dari Lingkungan Alam Berdasarkan Alam Tropis Indonesia

Donna Angelina

REVIEW ARTICLE

Biomimicry in Creative Contemporary Art Making Process 130-133

Hilal Mazlan

Typography as a Learning Aid to Recognize Color for Children with Color Blindness 134-139

Bantuan Pembelajaran Mengenal Warna Menggunakan Tipografi Bagi Kanak-Kanak Rabun Warna

Intan Nur Firdaus Muhammad Fuad, Khairul Nizan Mohd Aris, Mohd Salleh Abdul Wahab

The Influence of Hinduism in the Life of Malay Community: Analysis of R.O Winstedt's Views 140-148

Pengaruh Hinduisme dalam Kehidupan Masyarakat Melayu: Rujukan Khusus Karya Pilihan R.O Winstedt

Mohd Farhan Abd Rahman, Muhd Imran Abd Razak, Ahmad Firdaus Mohd Noor, Mukhamad Khafiz Abdul Basir, Nurul Khairiah

Khalid

Challenges of Implementing E-Learning in Art History faced by Instructors and Learners in Faculty of Art and Design, UiTM Perak 149-154

Nizar bin Nazrin, Farah Merican binti Isahak Merican, Syafiq bin Abdul Samat

Cultural Elements in Malaysian Paintings: A Survey 155-162

Elemen Budaya Dalam Karya Seni Catan Malaysia: Satu Tinjauan

Siti Humaini Bt Said Ahmad @ Syed Ahmad

LETTER

The Benefit Of 3-Dimensional Printing As An Effort To Preserve Pottery Arts 163-177

Pemanfaatan Teknologi Cetak 3-Dimensi Sebagai Upaya Pelestarian Gerabah Bentanga

Taufik Panji Wisesa

Integration Between Art and Science: An Art Appreciation of Nyawa Light Exhibition

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ABSTRACT

This study aspires to inform that collaborative artwork between art and science play crucial role in order to bridge the gap between art and science field. This research is to actually meet the objective such as study the contextual analysis based on the selected artwork from the Nyawa's light exhibition at the same time analyse the formalistic artwork and also interpret the aesthetical content of the selected artwork from Nyawa's light exhibition. In the present paper, the research method is described by qualitative study through two different methods which are through interview with three different artists from three different categories and through close observation. The findings were that collaborative artwork between art and science exposed the idea of understanding between both fields. Regarding to the statement the research creates a communication platform through artistic visualization on scientific theory that lead to new media exploration based on new ideology and invention.

Keyword: Art, science, light, nyawa exhibition.

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1.INTRODUCTION

Art and science experiments into new level of aesthetics that can draw statement that sound like self- fulfilling prophecies. The Collaboration between the two fields basically leads to an invention, a way of finding what when missing from both field, there is a little acknowledgement of the fact that contemporary artist uses a wide range of media which demands on many different mental processes. The collaboration between art and science also lead to the invention of media exploration that create an installation, performance, live art, sound art, digital art, internet art, film and video and so on. The function of all art may be reduced to universal principles, if it is regarded in terms of survival and emotion selection, the view of the evolutionary of science, media and technology.

There is certainly, a predominant trend in contemporary practice that can include the idea of art and science collaboration that basically lead towards conceptual art, which relies on intellectual association making and on a play with words and medium itself as message to the society. Intuitively, artists understand how a sensuous receptiveness to the world using the aesthetical value towards their art making. In relation with the statement, when art and science collaborate a new way of exploration occur, and this led to a new knowledge invention that can lead to the achievement of industrial revolution 4. Collaboration between science people with artist or designer such as 3D animator, Sculptor, Illustrator and graphic designer.

According to San Ede (2010), in which artist and scientist need each other, in order to build advance communication skills so that the public reach better understanding about both fields. It also a form of advance explanation about science through art method. In this proposal, the solution is to create awareness of integration between art courses and science.

In Malaysia, with the idea of this both field working together can benefits science student yet also given broader career path towards art student. Science people seek for artistic sense, truly use art as tool

for scientific discovery, it requires people to recognize the collaboration between art and science. (Wilson, 2002). Other than that, improving the illustration skill and as graphic designer, illustrator and sculptor will reach the value of critical thinking. Whereby the designer Implement their skills either in art form or also scientific form.

1.1 Problem Statement

In Malaysia context, there is a barrier between Art & Science programme. Academically in the university's syllabus, the field between art and science will go through different path and different career. It was claimed that presumably there are indications that a long period of tension between the two areas is closing with what passes for a dialogue but is just a litany. (Richardson, 1971).

In the context of technology and digital era, the knowledge towards science and invasion is part of crucial thing to highlight the idea of integration between these two fields. What makes the role as inter disciplinarians crucial is our ability to coordinate vastly different fields, and to be the link between it, in order that specific goals may be achieved for communicating with the public through the collaboration between art and science. This specialty is more focus towards the understanding of the artwork itself.

The major problem towards art and science field is that, there are barrier between this two fields, where the expertise like scientist speak different language between artists. Language basically created with the intention of communication. (Wilson, 2002).

Art seems to have been a medium of communication which linked the natural and metaphysical worlds. The major problem when it comes to scientific language, it needs specific understanding towards its theory. According to Ede (2010), art manifest intentional communication to others, like language it basically attributes meaning to a visual image that is not literally associated with its referent.

This research will focus on the idea collaboration of art and science in which to convey life complexity of the problem, while also making it accessible through visual communication. Science is usually thought of as the attempt to understand natural phenomena using the scientific method. While art is creation of beauty, the achievement of realism or the visual exploration of symbols. Art and science, the twin engines of creativity in any dynamic culture, are commonly thought of as being as different as day and night. This is a critical error.

According to Wilson (2002), in forging new art for the twenty-first century, it was claimed that they have tackled projects that might normally be categorized as science, ranging in focus in various department such as astronomy to zoology. Art seems to have been a medium of communication which linked the natural and metaphysical worlds. The major problem when it comes to scientific language, it needs specific understanding towards its theory.

Language operates outside the confines of the here and now space and time that bring the meanings of symbols can be variable between individuals and cultures or may carry multiple meanings. Relate with language barrier between art and science can be bridge with the idea of collaboration between both fields. Art then, appears to have played an important role in communication.

In which art basically as the medium of message was intended to communicate meaning at an intense level. This research intensely, links it with another crucial phenomenon in which occurred during the same critical period. The huge gap of understanding between art and science can be link through communication as the based in order to understand the different perspective from different background of field. (Lewens, 2015).

Art and science collaboration knowledge definitely will cover the basic understanding of scientific theory such as the sense of vitality or energy, flashes of light, luminescent colour in a form of

simplification pattern that created by the artist in which easy for the society to understand the theory through the visualisation of the artist. It can be summarized that art and science can engage in between artistic and scientific version of nature and answer the idea of curiosity, consciously or subliminally absorbing new advances and letting both artist and scientist collaborate with each other and letting the scientific ideas and images affect both content and form.

1.2 Research Aim

To bridge the gap of understanding between art and science field through analysis from selected artwork based on: Nyawa's light exhibition.

1.3 Research Objectives

1. To analyse the formalistic aspect of the selected artwork from Nyawa's light exhibition.
2. To study the contextual analysis of the selected artwork from Nyawa's light exhibition.
3. To interpret the aesthetical content of the selected artwork from Nyawa's light exhibition.

1.4 Research Question

1. What is the formalistic aspect of the selected artwork from Nyawa's light exhibition?
2. What is the contextual analysis of the selected artwork from Nyawa's light exhibition?
3. What is the meaning of aesthetical content of the selected artwork from Nyawa's light exhibition?

1.5 Significant of Study

The idea of the collaboration is to benefits the society with better future and lifestyle. Although Art cannot directly communicate science or change minds, but the art fields will create space for conversation around the difficult issues. In other way, art can inspire by science. Basically, based on this statement both collaboration between art and science can lead to the invention of new digital media exploration and new technologies development.

Based on this statement, in a way art will actually create a response to science. Based on Strosberg statement in his book title 'Art & Science', in this research proposal, it is a platform where artist examine problems from different angles and engage with in a different way from scientist, there is a great deal to be gained for scientist as well that can engage with artist.

The sensations between art and science will always remain the people to question their connection in order, for the people to achieve beyond miracle future. It stimulates and letting them conjure up uniquely. Usually scientist will not understand when it comes to contemporary art, an increasing number of artists are beginning to understand science and there are many examples of excellent works which have been inspired by the scientific process. If art is about anything, it reflects human experience in complexity, and it emanates from an inventive individual in which communicate about the scientific process itself.

2. LITERATURE REVIEW

In Malaysia context, the idea of collaboration on two fields between art and science is still in huge barrier. Academically in the school syllabus, the field between art and science will go through different path and different career. It is very crucial to highlight the idea of marriage between these two fields. Back during the history, the idea of art and science were merely like the most ideal couple. Leonardo Da Vinci himself an artist and a scientist, which involved in both fields' art and science. Art and science

are like the fundamentals of any inventions and future. This research on the collaboration of art and science is to convey life complexity of the problem, while also making it accessible.

The term and meaning of art and science elaborately explain in detail according to different context and perspective. The link of understanding between the keywords from the terms of art and science. The term Art is not mean to end. It is its own finality; therefore, it can be only tentatively defined analogically and through the agreed attributes that pertain to it. (Chiari, 1977). According to Chiari (1977), Art expresses essential aspects of existence such as philosophy and politico-social action express others, while religion underlies them all. The word science brings the meaning of intellectual process in which produced explanations for everything from the origins of human culture to the mechanisms of insect investigation, from the formation of black holes to the workings of black markets (Lewens, 2015).

Universiti Putra Malaysia is an academic institution where in 1991, the Faculty of Engineering from University Putra Malaysia (UPM) proposed to offer the architecture programme in the university. However, the idea mooted never materialised until the Faculty of Agriculture was given the task by the University's management to investigate the feasibility of offering both landscape architecture and architecture in UPM. A committee was formed in the Faculty of Agriculture 1994 and in 1995 a report was sent to then Vice Chancellor proposing the setting up of a new faculty offering courses in design and the creative arts.

Nyawa Exhibition is a series event that consistently held every year by established academic institution from University Putra Malaysia (UPM). Nyawa exhibition started the event actively from the year of 2012. Nyawa exhibition consists different theme every year that related with the idea from the concept of 'Nature's Yield and Wonders of Art', in which the first Nyawa exhibition 2012 represent the theme of fruit, whereas for the theme in the year of 2013: Insect, Nyawa 2014: Microbe, Nyawa 2015: Bird, Nyawa 2016: Brain, and the latest Nyawa exhibition 2017: Light.

Particularly in this research will focused on Nyawa exhibition 2017: Light. As in light is one of the keywords that used in this research, as the artwork observation align with the Nyawa exhibition series: Light 2017, Nyawa exhibition is back in its sixth edition with the theme light. Throughout the ages, light has been valued as the most magnificent phenomenon of creation and the eye that perceives it as the most important human organ of sense perception.

Light in the perspective of art, every ray of light coming from the sun is composed of waves that vibrate at different speeds. The sensation of Colour is aroused in the human mind by the way our sense of vision responds to the different wavelengths. This can be experimentally verified by observing a beam of white light that passes through a triangle shaped piece of glass (a prism) and then reflects from a sheet of white paper (Ocvirk, 2002).

Light in the perspective of science, in the science world, electronic light is a simple electronic circuit which react to light, sound or to small signal currents from the output of a tape-recorder. It can easily be used to control relays or reed switches, or to control Thyristors (silicon control rectifiers), with Thyristors in particular, loads of up to 2 kilowatts can be switched by signals of the order of 150milliwatts (Tovey, 1971)

The idea of the collaboration will benefit the society with better future and lifestyle. Although Art cannot directly interpret science or change minds, but the art fields will create space for conversation around the difficult issues and played the role in communication through visual images (Stangos, 2003).

In other way, art can inspire by science. Based on this statement, in a way art will create a response to science. Rather, what makes our role as interdisciplinary crucial is our ability to coordinate vastly different fields, and to be the link between them in order that specific goals may be achieved for communicating with the public. This specialty is less focused on leading based on separate field, but it is a platform where the society can refer to both of the collaboration between art and science.

Collaboration between art and science will bring a new knowledge towards the future education. For example, the subject of science which is astronomy can blend in with artistic photography. According to Ede (2005), in astronomy, the application of photography to the production of permanent records of celestial phenomena, the improvement is astronomical instruments, and the wonderful discoveries of the galactic environment. We can merely see the chemistry between art photography and astronomical project both collaborations can bring out a phenomenal discovery just like national geography discoveries.

Art line like sculpture and painting comprise a science, adorned with many disciplines and various branches of learning process. It is the greatest invention of them all, it is made with a certain level of meditation, during which it is composed according to rational considerations. Strongly influenced by 'The Ten on Architecture' by Vitruvius, being the only surviving artistic treatise from antiquity. (Ede, 2005). The question about one's role is in fact keeping this research questioning why art and science do have developed into such different beasts in the last couple centuries. Through this research it is a platform to bring back the collaboration between art and science just like Leonardo da Vinci's era. Through the marriage between art and science it will benefits the society in so many ways. Other than bringing up a new knowledge for the future it will also help the society in terms of career wise and create new field for the community to work in between art and science.

The word light in the Islamic context, refer to Al-Quran, in the light verse-35 in which notably the most mystical verse from the holy Quran, the characteristic of light explained precisely in surah An-Nuur. In the surah An-Nuur, Allah is the light that enlighten universally. Scientists in optics have always wondered if light can be store and stop the light in its path without destroying whatever information it carries.

Light in the terms of science can be elaborate in many categories. Particularly in this research. The terms of light in the science world focused in the types of electronic light. As stated by Tovey (1971), in these kinds of light it is basically a simple electronic circuit which react to light, noise or physical attachment. The characteristic of light itself is actually in an invisible form, it only becomes visible when the light strikes an object and reflected from the light. Whereas coloured light from a few projectors able to cover a white wall with arrangement of changing colours, or it can irradiate precisely planed three dimensional shapes.

There is a huge potential and indeed demand for the attempt to bridge the division between different ways of making sense of the world. There are certain qualities to each art and science which are difficult to translate and often end up in shallowness and masquerade with little contribution be it poetry or knowledge. It is a very difficult task, from the artist's perspective, to make something which both succeeds on the more intuitive cultural layers of what we value about art and the ones that are usually associated with science.

Art literally involve creative process while science basically involve experimental process, the main idea of marriage between art and science merely is form of research whereby to inform and educate the public how to bridge the gap between art and science. As stated by Strosberg (2001), mechanistic and logical rational principle it is the idea of science understanding and it is merely scientific management approach whereas the idea of art management is the idea of exploration of creativity and aesthetically.

The platform of making the marriage between art and science is beyond possible because it already done years ago during Leonardo Da Vinci. Bringing the concept of this collaboration are needed in today's era where the development of the technologies itself making the idea of art and science marriage ideal for the current lifestyle (Greenberg, 1970).

3. RESEARCH METHODOLOGY

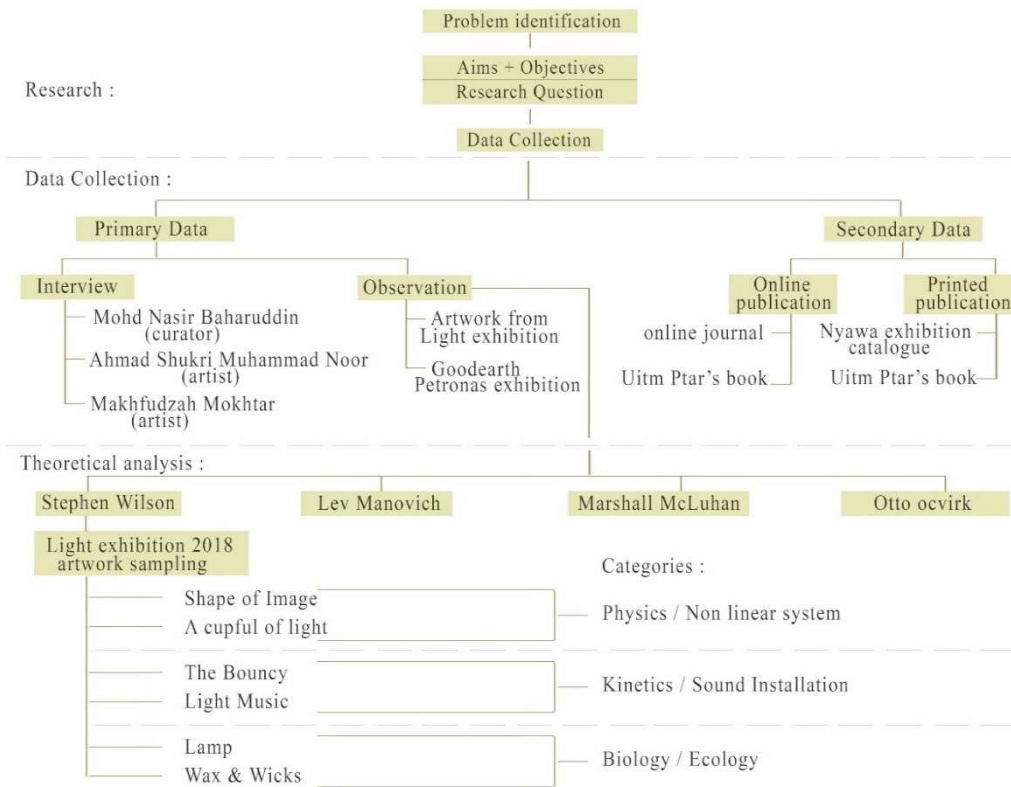
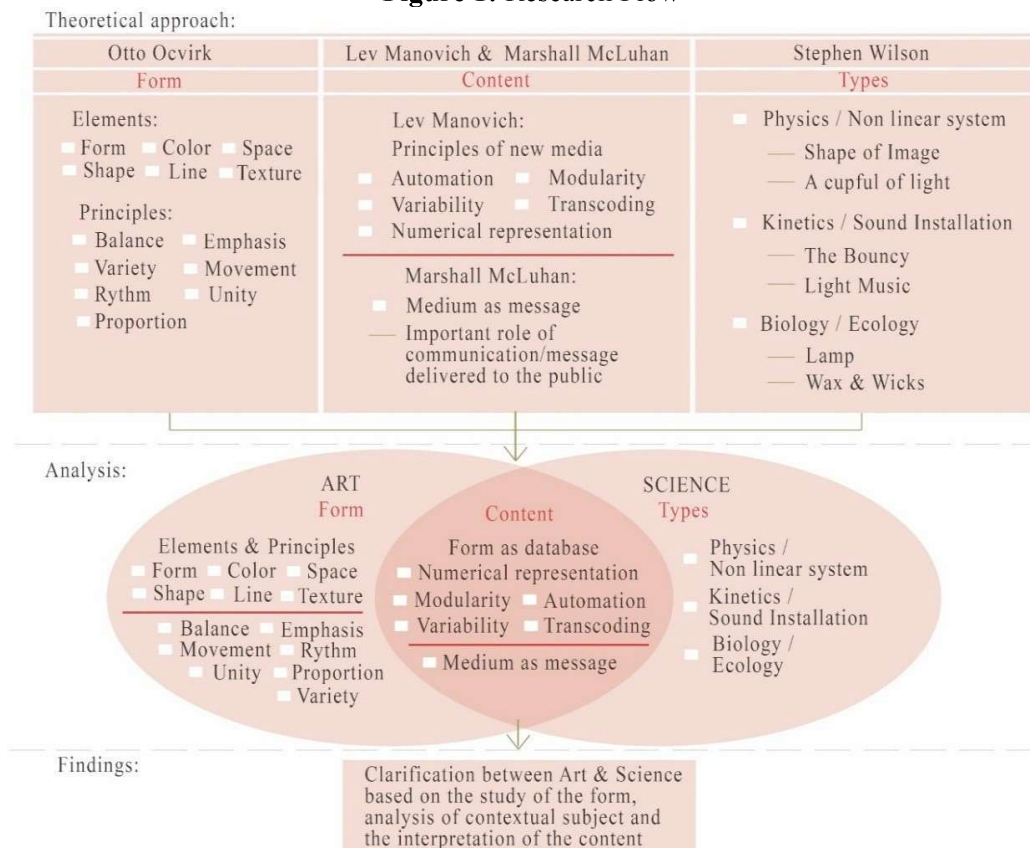


Figure 1: Research Flow



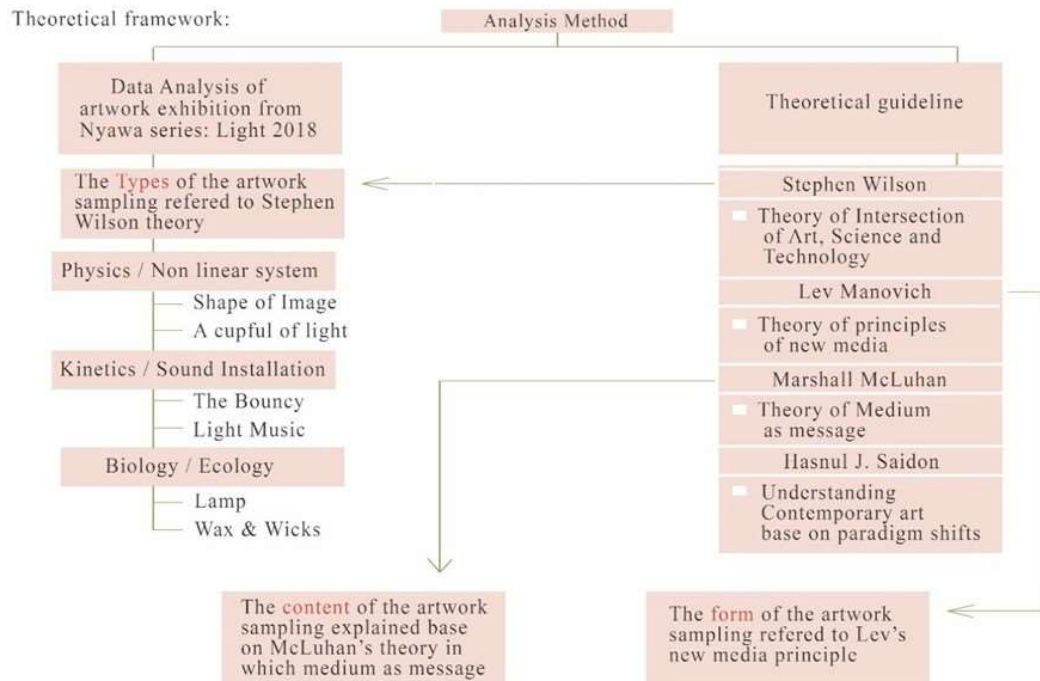


Figure 2: Research Framework

4. DATA ANALYSIS

	<p>Artwork Title : A Cupful of Light</p> <p>Artist : Makhfudzah Mokhtar, Taiwo Ambali, Zamili Mohamed Sathzura Saidin, Siti Noradhlia Mohamad Tukijan and Mumtaz Mokhtar</p> <p>Material/ Medium : Plastic cup, Water, Light emitting diodes (LEDs)</p>
	<p>Artwork Title : Shape of Image</p> <p>Artist : Maryam M Isa, Nasir Zakaria and Fadi Imad Osman</p> <p>Material/ Medium : Computer, Light emitting diodes (LEDs) matrix display and minicomputer on a chip</p>
	<p>Artwork Title : Light Music</p> <p>Artist : Ahmad Shukri Muhammad Noor, Zuraidah Zan, Syamsuri Yaakob and Azizi Mohd. Ali</p> <p>Material/ Medium : Speaker, Light emitting diodes (LEDs) cube, laser pointer.</p>
	<p>Artwork Title : The Bouncy Beam</p> <p>Artist : Mariatulqabtiyah Abdul Razak and Ruqayyah Ainul Bashirah</p> <p>Material/ Medium : fluorescent lamp</p>
	<p>Artwork Title : L.A.M.P</p> <p>Artist : Nor Asmara Tasrip, Nur Fadhilah Khairil Mokhtar, Ummi Kalthum Hanapi, Md. Eaqub Ali, Cheah Yoke Kqueen, Suhaimi Mustafa and Mohd Nasir Mohd Desa</p> <p>Material/ Medium : Loop mediated isothermal amplification</p>
	<p>Artwork Title : Wax and Wicks</p> <p>Artist : Faridah Hanum Ibrahim, Mohd Nasir Baharuddin and Norhidayah Mad Halid</p> <p>Material/ Medium : wax, glass and natural branches as wicks</p>

Figure 3: Analysis

Nyawa series exhibition: Light 2017, basically presented 20 artworks that related with light, in which the Serdang Gallery in Universiti Putra Malaysia (UPM), now promoting another level of exhibition where the forms of expression extend or engage with electrical and technological in the context of light. Based on all the six-artwork sampling, each two of the artworks represent one category.

All the sampling from the six artworks are selected based on three different categories which is Physic and Nonlinear system, Kinetics and Sound Installation and Biology and Ecology. Three of the artwork sampling used the light emitting diodes (LEDs) as their main material. 'A cupful of light', 'light music' and 'shape of image' are the three artwork that composed the light using LEDs.

There were 20 artworks presented at the *Nyawa* series: Light 2017 exhibition, 6 artworks that selected from all the 20-artwork presented at the event. Each two of the 6 selected artwork categorized in 3 different categories. Detail explanation towards the selected artwork discuss in chapter 5 where all the material and philosophical meaning and detail interpretation

Basically, in this chapter primarily explain about the analysis process where the researcher collected based on the close observation and interview with selected artist. Out of 20 artwork display at the *Nyawa* exhibition series: Light 2017, 6 selected artworks, that analysed by the researcher according to 3 different categories. Basic idea about the selected artwork were analysed by the researcher by listing the types of material that used in the selected artwork and the concept of the artwork.

Practically, this chapter present all the data base collected by the researcher from the *Nyawa* exhibition series: Light 2017. All the list of artworks in the exhibition were arranged in a table content as data collection, in which as prove, that practically can be refer at the appendices section. The detail information about the artwork all presented in the Light 2017 catalogue book that provided by the Gallery Serdang in University Putra Malaysia. It can be summarized in this chapter that, the artwork in the exhibition provides the other expertise to involve with the art making in which develop an invention that basically create opportunity for the society to see differently.

At the same time this collaboration between art and science helps the scientist and engineering to understand the aesthetical value in the artwork. By constructing an innovation, it actually gives space for the invention of new technology and encourage the involvement of more collaboration among researchers to interact and participate in discourse.

The *Nyawa* exhibition series: Light 2017 has paved a new development of a new paradigm in educating the society about the idea of collaboration between different field that can lead to the experience of digital development and the invention of technology, at the same time a new way to reach better understanding and is a form of learning process.

All the elaboration of the interviewee's answers the detail information about the artwork. In which explain the material used in the artwork and the relation on science theory each one of the artworks. It also includes instances where the interviewee supported the idea between art and science collaboration, as for the first interviewee highlight on the idea of bridging the gap between different kinds of field.

The second interviewee stated that through collaborative artwork between art and science can lead to a communication platform where each field understand the difficulties of language between two different fields. Whereas, the third interviewee focus on the artistic visualization towards the scientific theory. All the three interviewee that participate through the interview session, are represent as one of the artists from the selected artwork sampling. All the three- interviewee explained in detail about the idea and concept of the artwork.

5. FINDINGS

In this chapter basically, interpret in detail about all the artwork sampling. Detail elaboration on the idea of the artwork in terms of the contextual elements and the aesthetical content of the artwork in which relate with both art and science idea. There is much contemporary science that can stimulate art's flexible, intuitive and visceral response to the world. The discussion explains the concerns new artistic and scientific explanation through the supported theory as the researcher used as guideline.

The finding in this chapter lead to the discovery of philosophical differences that apply in the art and science artwork, in which it explains the mystery between art and science idea. Collaboration artwork between this two field, art and science that on one hand is the view that there is an implicit reality that can be explore. As art is part and parcel of culture, it is crucial to be wary of where value and judgements come from.

This chapter is a platform where art and science are the new knowledge that lead to a new invention and the active involvement with new media and technologies that can basically lead to new creation and achieve the evolutionary theory. The collaborative idea on art and science elaborately connected in various perspective such as, nature, technology and the exploration of different media that can exposed the artist towards contemporary art.

In the past, science aspired toward a dream of total predictability. Contemporary scientist now accept that some systems are nonlinear. Slight perturbations can have profound effects on the systems, which makes them hard to predict. Some theorists see nonlinear system area of concern as a radical challenge to traditional physical science, while others see it as a fine tuning. In these categories, artist elaborate the body of speculation fascinating because it seems to open new perspective of communication between art and science.

A cupful of light is an artwork collaborate between six different artists in order to produce this artwork using a programmable lighting. This artwork a cup that filled with water arrange in a rack, in which the light eventually disperse from one cup to another based on arrangement in form of a movement of light.

When the light travels from air to water in the cup, light refraction take place in which as result, the visual impairment can be seen through the objects that radically change position as the audience view the at the objects from different point of view of the cup. Different types of color from the light emitting diodes (LEDs) are placed in the cup in order to demonstrate that light consists of different wavelengths, which are identify as different colors. A cupful of light primarily describes the use of programmable lighting in water filled cups. As refer to this statement, it explained the theory of how the light travels from air to water, align with this processes, light refraction occurs.



Figure 4: Artwork

Integration Between Art and Science: An Art Appreciation of Nyawa Light Exhibition

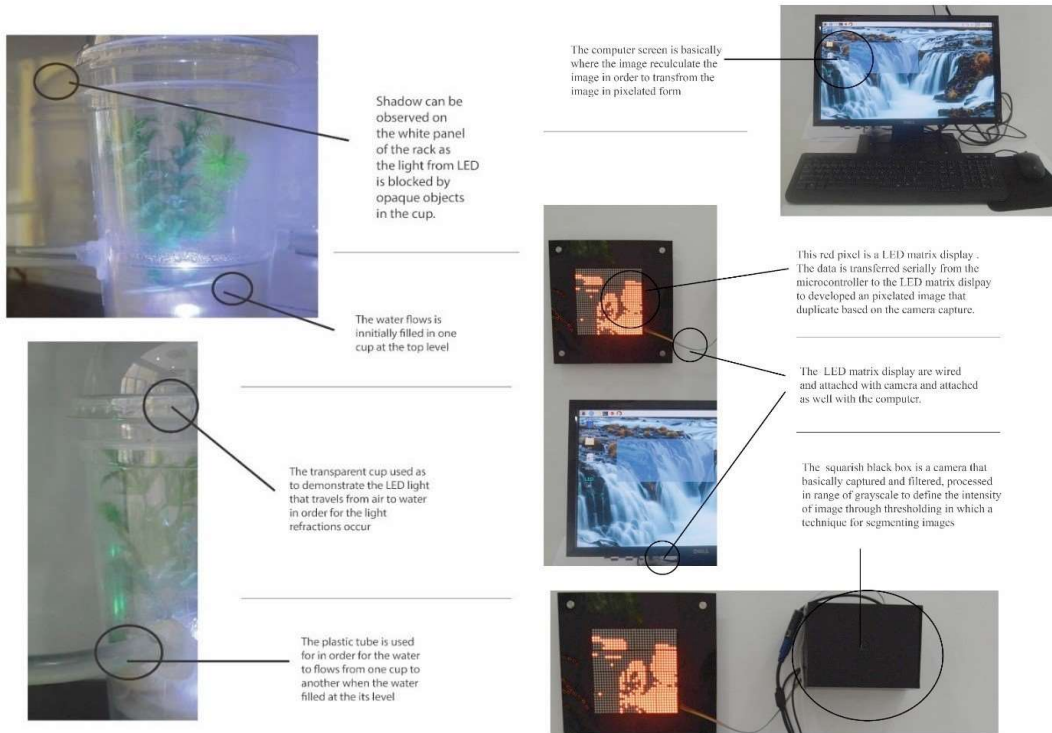


Figure 5: Artwork Media and Material

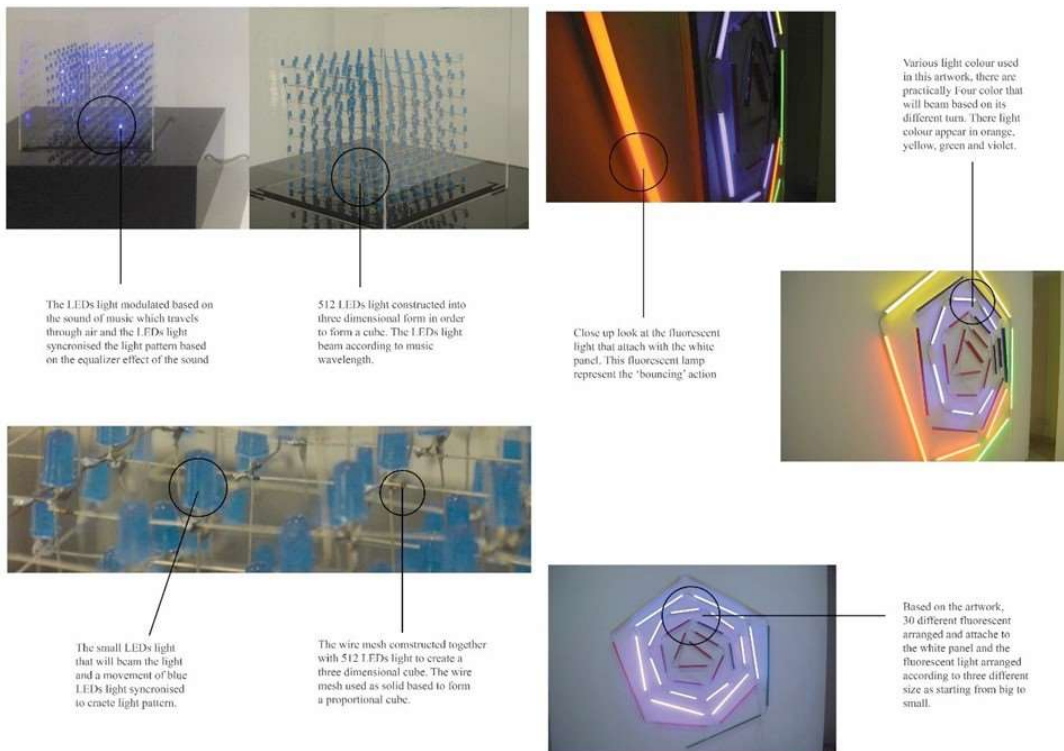


Figure 6: Artwork Media and Material

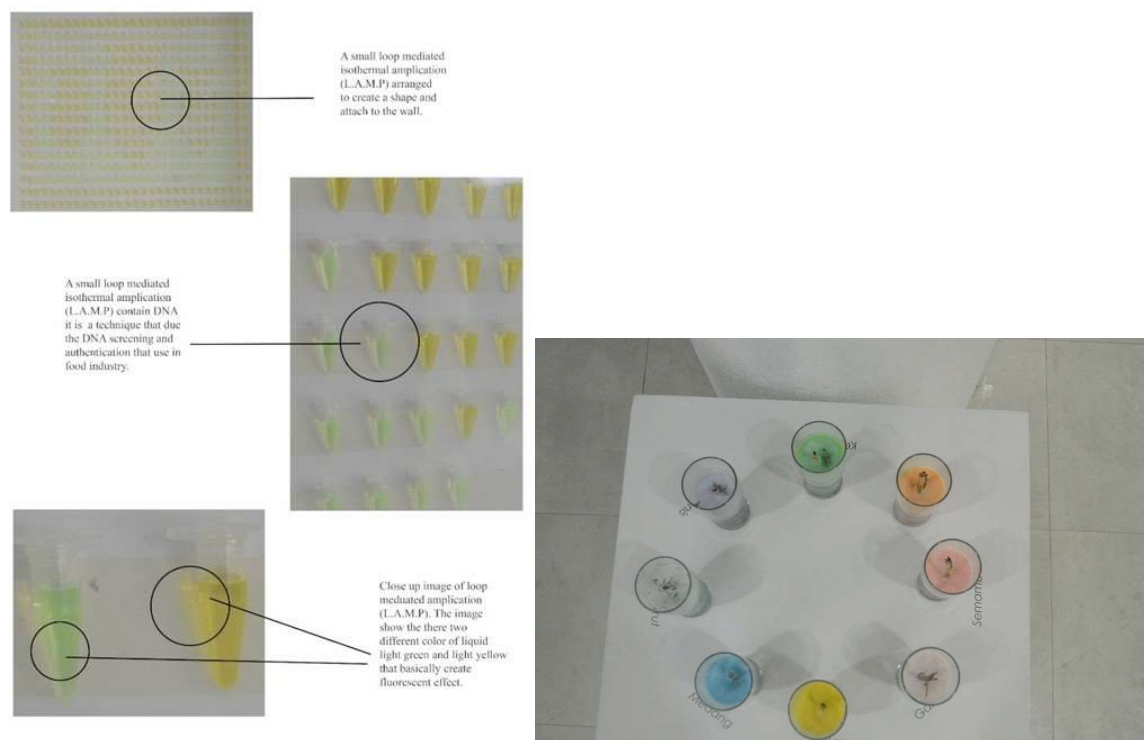


Figure 7: Artwork Media and Material

The example title of the artwork sampling 3: Light Music can differ various meaning in human's daily life, in which light music basically can enlighten the public's life through the rhythm of light. The society basically can enjoy the beats and rhythm visually through their eyes not only by their ear. Regarding to this idea, it would benefit disabled peoples especially among deaf and mute people. In this way of art installation giving an opportunity to the disabled people to enjoy music visually.

In this research, the theme of the exhibition which is light practically can be relate with the Islamic context. In the Al-Quran, in the light verse 35 (surah An-Nuur), explain regarding about the light. Allah is the light of the heavens and earth where the humans indeed require light as guidance in every single life. God create sun source of light that enlighten the earth and human's life. Light is mysterious yet beautiful and full of crucial criteria.

In today's world, where the expansion of technologies relates with digital devices. The fourth industrial revolution, in which related with the idea of light in scientific understanding where the phenomena of light design in this research relate with the extension of digital and electronic light. In terms of design concept, the basic understanding of the art craft can be highlight regarding to the Malay design principle, according to the basic Zakaria Ali theory and principle. Six principle by Zakaria Ali which is fine principles, usefulness, unity, symbolic, contrast and meaningful. All the principle used in the discussion of the selected artwork.

The understanding of light in the context of art, science and Islamic meaning used as a communication platform in order to bridge the different language between art and science field. All the related idea on various theory, precisely elaborate in terms of the material and subject matter of the selected artwork.

The idea of visualization of the art and elements principle and together with the scientific theory as the core in this art and science collaboration. Philosophically emerge with the Islamic context where light is the most crucial thing human's life as the light symbolize as the guidance in life at the same time enlighten human's life.

6. CONCLUSION

It can be concluded that, the collaboration between art and science is a new form of appreciation and communication platform in which scientists scanning technologies that possess a beauty in which sufficient unto itself. Meanwhile the artist communicates the science language in form of creative way in delivering the message towards the viewer. Artist played an important role in encoded the messages from the scientist. Intellectually, the concept of art and science collaborative artwork, give the society a greater understanding of natural world that were never equipped to view.

The sense of value and critical thinking towards certain contain can be expand into beyond level as the expansion of the digital and technologies also taking over. Art and science can lead to the invention of new media and technologies as for the unique collaboration can primarily expose the aesthetical of the intrinsic meaning from the creation. The potential for new catastrophes lurks and super intelligent machine and invention might occur with the idea and concept of collaboration between art and science.

7. RECOMMENDATION

The art and science collaboration are recommended to be maintain and make it practical in the local context. Especially through the education line where local universities should encourage future collaborative idea between various field. This would basically help the student to be exposed with the understanding of different language from different field. This research concept on integration between art and science will lead for further investigation.

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