The Preliminary Exploration of Multimedia Effects in Sculpture Creation Inspired by Maslow’s Hierarchy of Needs †

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† Presented at the International Academic Symposium of Social Science 2022, Kota Bharu, Malaysia, 3 July 2022.

Abstract: Due to the limits of conventional sculpting, some artists may be unable to express themselves creatively. The research question is therefore posed: What are the factors that influence the use of multimedia effects in sculpture creation and Maslow’s hierarchy of needs? The research objective of was to identify the factors that influence the use of multimedia effects in sculpture creation and Maslow’s hierarchy of needs and to develop new creative methods for sculptors. The study used the purposive sampling method to invite six traditional sculpture artists and six multimedia sculpture artists to participate in interviews in an online format. Six factors were obtained from the analysis.

Keywords: multimedia effects; sculpture creation; Maslow’s hierarchy of needs

1. Introduction

Sculpture art forms often employ three methods of creation: carving, engraving, and modelling, according to the conventional notion. Various soft (such as plaster, resin, clay, etc.) or hard materials (such as wood, stone, metal, jade, etc.) can be carved and engraved to create a space of visible and tactile art images that mirror social life and communicate the artist’s aesthetic feelings, emotions, and aspirations. With the advancement of science, technology, and changes in the aesthetic notion of the audience, the modern sculpture is increasingly employing new materials, concepts, and scientific and technical tools [1]. On the other hand, the classic sculptural notion is increasingly being superseded by new conceptions in contemporary circumstances. Because the new sculptural concepts and principles are still developing, individuals are not yet entirely removed from their thinking. The value of these thought concepts such as truth, goodness, and beauty has caused a significant distortion, and the traditional way of creating sculpture has failed to meet the contemporary sculpture art sought, and sculpture has also become blurred by the impact of various forms in this general environment [2]. As a result, many sculptors’ goals and needs have shifted considerably throughout their work.

Multimedia exploration has offered artists a modern, personalised language to work within the creation of art. It has shattered the barrier between technology and sculpture art, allowing for the production of new methods and forms of sculpture [3]. Sculpture artists are no longer limited to using traditional materials such as clay, wood, stone, and metal to create their works; instead, they are increasingly incorporating multimedia effects such as audio, graphics, video, text, and light to create and communicate their emotional responses, resulting in multimedia sculptures [4]. The artists continue to experiment with new sculptural materials to communicate their emotions via their art, satisfying both their aesthetic and self-actualisation needs.

The study used a version of Maslow’s eight levels of needs. In 1943, Maslow first proposed a theory of five levels of human needs in A Theory of Human Motivation, with self-actualisation needs introduced as the highest need [5]. The theory was expanded in 1970 to include cognitive and aesthetic needs [6], and later, transcendental needs [7]. Aesthetic
and self-actualisation needs are located at levels six and seven in Maslow’s hierarchy of needs theory (Figure 1) and are second only to transcendental needs, which are the highest level as higher-level spiritual needs [6]. In the process of creating art, artists are continually seeking these two spiritual requirements [8].

The study used a version of Maslow’s eight levels of needs. In 1943, Maslow first proposed a theory of five levels of human needs in A Theory of Human Motivation [5]. The theory was expanded in 1970 to include cognitive and aesthetic needs [6], and later, transcendental needs [7]. Maslow’s hierarchy of needs model.

Figure 1. Maslow’s hierarchy of needs model.

The research questions are: What are the factors that influence the use of multimedia effects in sculpture creation and Maslow’s hierarchy of needs? What are the multimedia effects being utilised in sculpture creation inspired by Maslow’s hierarchy of needs?

This research aimed to explore the multimedia effects being utilised in sculpture creation inspired by Maslow’s hierarchy of needs and identify the factors that influence the use of multimedia effects in sculpture creation and Maslow’s hierarchy of needs.

The basic descriptions of “sculpture creation in artists” and the development of sculpture-creation materials is given first, followed by a more detailed explanation of “multimedia, multimedia technology” and “art, effect,” as well as a discussion of the possibilities and methods of combining the two in sculpture. In Maslow’s hierarchy of needs, the relationship between aesthetic needs, self-actualisation needs, and artistic creation is discussed. Finally, the factors that influence the use of multimedia effects in sculpture creation and Maslow’s hierarchy of needs are examined.

Significance

The significance of the exploration of multimedia effects in sculpture creation inspired by Maslow’s hierarchy of needs has three main aspects.

Firstly, it is an extension of the way and form in which sculpture is created and promotes the development of sculptural art. The use of multimedia effects in sculpture creation can break down the boundaries between art, science, and technology, adding more artistic interest and visual tension to sculpture, thus injecting new connotations, expanding the creative space of sculpture art, and promoting its multi-dimensional development.

Secondly, it has an impact on the way sculptors create and think, creating more from different perspectives of needs and achieving a positive interaction between themselves and sculpture in a spiritual sense. Meanwhile, it can also bring diversified forms of expression to sculpture works, and the combination of media effects and art adds different colours to sculpture art, enriching the spirit of the times and the cultural connotation of sculpture.
Finally, the realisation of multiple mediums in sculpture art allows the public to see more forms of sculpture art, satisfying the artistic needs of visitors and playing a positive role in the art education of the next generation.

Overall, research on the use of multimedia effects in sculpture creation, especially at the level of human psychological needs, is necessary and has a certain forward-looking and practical significance.

2. Research Conceptual Framework

The research focuses on the factors that influence the application of multimedia effects in sculpture creation and Maslow’s hierarchy of needs. The relationship between the application of multimedia effects in sculpture creation and Maslow’s hierarchy of needs is set out first. The research framework (Figure 2) consisted of three elements: the multimedia effects on sculpture creation, the influence factors, and Maslow’s hierarchy of needs. The relationship between these influences is that the use of multimedia effects (audio, graphic, video, light) in the creation of a sculpture by the artist can satisfy the artist’s own aesthetic and self-actualisation needs, and the factors that shape this relationship are an increase in the artist’s aesthetic understanding, a greater emphasis on aesthetic enjoyment, and an increase in innovative ability and innovative thinking.

![Figure 2. The preliminary framework of multimedia effects in sculpture creation with Maslow’s hierarchy of needs.](image)

2.1. Sculpture Creation Artists and Sculpture Materials

Sculpture creation is an entirely spatial embodiment of the artist’s personality, and the sculptor expresses his thoughts and feelings via his work. Contemporary artists use various media materials to display and expand a large amount of artistic information, arrange and combine materials of various forms and structures in a specific way to form spatial symbols, and express their ideas and emotions in various forms such as realistic, abstract, decorative, and installation during the creation process [9].

Because of the constant growth of colonial times and science and technology, sculpture materials have steadily evolved from traditional materials such as clay, wood, bone, ivory, jade, and stone to current materials that can generate multimedia effects such as video, audio, and graphics [10], to support modern artists in their pursuit of a distinctive style of expression and practical knowledge of life [11].

2.2. Multimedia, Technology, Arts, and Effects

Multimedia is a term that refers to a collection of different media (or mediums) [12]. Multimedia technology is the systematic combination of animation, audio, graphics, images, video, and other media, as well as their corresponding and reasonable processing, such as animation production, audio processing, graphics processing, video processing, and so on, to create a logical and reasonable connection [13]. The use of multimedia or multimedia technology in art creation innovates and expands the notion of art, enriching the creative form of art and giving the artist a new space of expression to convey his or her artistic point of view using new methods and materials.

Multimedia artworks combine a variety of mediums and artistic expressions to create a powerful aesthetic impression on viewers. Multimedia art may also combine visual, aural,
temporal, and spatial art, giving multimedia works a multi-sensory influence on viewers and heightening the tension in the artworks [14]. Multimedia impacts in sculpture art may help it evolve and develop more effectively and help artists to more directly express emotions, vent inner desires, and realise their demands.

Audio on sculpture, graphics on sculpture, video on sculpture, and light on the sculpture are examples of multimedia effects employed in sculpture. These emerging forms of sculpture expression can help sculpture creators use diversified creation methods, compelling their audience through visual and auditory means to realise the communication of the content of the work, becoming a bridge of emotional communication between sculptors and visitors, and realising the Aesthetic needs and self-actualisation needs of sculptors.

2.3. Aesthetic Needs and Self-Actualisation Needs in Maslow’s Hierarchy of Needs and Art

Aesthetic and self-actualisation requirements are higher-level spiritual desires in Maslow’s hierarchy of needs, which are second only to transcendental needs in the 1970 edition of Maslow’s hierarchy of needs [15]. When art is made, it must first fulfill the artist’s spiritual needs as a derivative of spiritual needs. Aesthetics are an interior sense, a sensation of objects experienced during mental activity. The sense of objects in the course of life is the aesthetic necessity stated here for human beings. It is also the most fundamental characteristic of artistic creativity [16]. People’s desire to develop their abilities and their potential in society is known as self-actualisation. Self-actualisation, or the desire for self-actualisation, aids in the development of the desire to utilise all of one’s latent skills. According to Onah (2015), the urge for self-actualisation allows people to be more creative in society [17].

The use of multimedia elements in sculpture provides artists with new approaches and tools to achieve their aesthetic and self-needs. The varied multimedia effects make it possible to create sculptures with more possibilities, while allowing artists to show their creativity and granting full play to their artistic talents, allowing them to greatly satisfy their aesthetic and self-actualisation needs when creating their works.

3. Research Method

This study uses qualitative research methods. Qualitative research methods focus on the collection and analysis of non-digital data (e.g., text, video, or audio) used to understand the concepts, opinions, or experiences of the research participants [6]. A qualitative research method was used due to the exploration of human emotions and feelings towards multimedia effects in sculpture creation.

As one of the primary methods in social science, a qualitative method was utilised as a bridge between the research and design process, especially in the exploration of multimedia effects in sculpture creation inspired by Maslow’s hierarchy of needs.

A case study is an in-depth, detailed examination of a specific case (or cases) in the real world [18]. This type of research allows for the gathering of extensive data on artists’ perspectives on multimedia effects in sculpture creation, as well as the comprehension, organisation, and detailed analysis of the research topic “Multimedia Effects on Sculpture Creation Inspired by Maslow’s Hierarchy of Needs” as a research topic.

In qualitative research, interviews are the most popular method of data collecting, with the goal of conducting in-depth personal interviews with a limited number of respondents to learn about their perspectives on certain ideas, plans, or circumstances [19].

This study mainly used semi-structured interviews. The research question is about the changing needs of art creators brought about by the use of multimedia effects in sculpture creation. The scope of the study is relatively broad, involving both sculpture art and Maslow’s theory of needs, and it is also a topic that favours feelings, so it was not possible to set standardised answers and responses. The semi-structured interview, with its semi-open and guided communication, made it easier for the interviewees to communicate freely within a certain range and to obtain research information and data effectively [20].
4. Sampling

This study used purposive sampling because this study had a specific target study population, and the characteristics and advantages of a purposive sampling approach were more likely to help the study obtain valid data. The 12 sculpture artists interviewed for this study were between the ages of 25 and 30 and had been working in the sculpture industry for at least 5 years, including six artists who create sculptures using only traditional materials (henceforth referred to as traditional sculpture artists) and six artists who have already used multimedia effects for their work (henceforth referred to as multimedia sculpture artists). According to the age structure redefined by WHO in 2015, people 25 to 30 years old are considered young people [21], an indispensable part of the artistic development of contemporary young artists who are more willing to try new things, catch up with avant-garde art trends, have a spirit of experimentation, and have great plasticity and future creative potential [22]. Sculptural creation needs young people with a creative and experimental spirit in order to move forward. Young people are also quicker to accept and explore multimedia effects. Therefore, the age range of the sample was set between 25 and 30 years old.

The research sites were located in Hebei Academy of Fine Arts and Tianjin Academy of Fine Arts. The sculpture major of Hebei Academy of Fine Arts is one of the key construction majors of the school; the teachers and students are involved in the design of campus landscape sculpture, mostly using traditional sculpture materials [23]. Tianjin Academy of Fine Arts is one of the eight outstanding art and art institutions in fine arts, as rated by the China Academic Degrees & Graduate Education Development Center (CDGDC) of China [24], of which the School of Experimental Art responds to the current social development and artistic requirements, emphasizing the integration of values across fields, industries, disciplines, and cultures [25]. Thus, the Hebei Academy of Fine Arts was the sampling site for traditional sculpture artists, and the Tianjin Academy of Fine Arts was the sampling site for multimedia sculpture artists.

5. Analysis and Results

The research used the data analysis method of thematic analysis, which was often used to analyse the information from this paper and to help researchers digest the data. Braun and Clarke (2006) developed a six-step process: familiarisation of data, initial coding, generating themes, reviewing themes, defining and naming themes, interpretation, and reporting, for the inductive analysis of the data [26].

After analysing the pre-test data, the results of the analysis were obtained to answer the two research questions respectively.

In order to answer the first research question, “What are the factor that influence use the Multimedia Effects on Sculpture Creation and Maslow’s Hierarchy of Needs?”, interview questions were designed for traditional and multimedia sculptors as follows (Table 1).

<table>
<thead>
<tr>
<th></th>
<th>For Traditional Sculpture Artists:</th>
<th>For Multimedia Sculpture Artists:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Do you think that the use of multimedia effects in sculpture creation can satisfy the <strong>aesthetic needs</strong> of the creator even more?</td>
<td>Do you feel that your <strong>aesthetic needs</strong> are more satisfied when using multimedia effects to create sculptures?</td>
</tr>
<tr>
<td>2</td>
<td>Do you think that the use of multimedia effects in sculpture creation can satisfy the <strong>self-actualisation needs</strong> of the creator even more?</td>
<td>Do you feel that your <strong>self-actualisation needs</strong> are more satisfied when using multimedia effects to create sculptures?</td>
</tr>
</tbody>
</table>

Ten of the twelve artists interviewed agreed that the use of multimedia effects in sculpture can satisfy their own aesthetic and self-actualisation needs, accounting for 83.3% of all artists interviewed.
In the interview responses about aesthetic needs, traditional sculpture artist A mentioned that “the use of multimedia in sculpture can meet some of my aesthetic needs in sculpture ...... I think the use of multimedia effects is more capable of achieving the subjective feelings and subjective aesthetics that I want to express in my work ...... It will focus more on the artist’s own ideas, as well as his own creative philosophy. ... Multimedia effects, materials, etc. ...... to help me realise certain creative ideas”.

The traditional sculpture artist A clearly expressed the aesthetic needs that can be met by the artist. The reason for this is that it enables them to realise their aesthetic expression and creative ideas, and the artist’s own subjective aesthetic can also be better expressed, allowing the aesthetic concept and space to be changed and expanded. Traditional sculpture artist C also expressed this view clearly, believing that there are more channels and ways of creative expression and that these lead to a better interpretation of her own aesthetic concepts and emotions.

Multimedia sculpture artist D expressed the same view as above, saying “The use of multimedia effects in sculpture allows me to be more in tune with what I want to express, ...... It also inspires more formal or conceptual ideas, it’s a mutually reinforcing process ...... It is a new form ...... Creates a new aesthetic and way of seeing ...... opens up a new aesthetic space ...... The richness of one’s own life experience can be released more”.

In the interview responses about self-actualisation needs, according to traditional sculpture artist D: “I think it should keep my mind active and I can often come up with new ideas to make new work better......make me more open-minded, because ideas may change and I will think about how to combine with these new technologies to make more interesting and ‘story-like’ works”. Multimedia sculpture artist E expressed a similar view: “Multimedia effects have made this kind of coding richer and more diverse for me, allowing for many more combinations of codes, adding more possibilities for creation and inspiring me to be very creative and to actively explore more ways of creating”.

It is clear from this that the use of multimedia effects in sculpture can be more satisfying to the artist’s self-actualisation needs, mainly because it makes their creative thinking more active, increases their creative ability, and inspires them to experiment with new possibilities.

The analysis of the interview data obtained a total of six themes, three of which were aesthetic needs and three of which were self-actualisation needs. The specific codes and definitions of the themes are presented in the Tables 2 and 3 below.

### Table 2. Aesthetic needs, coding themes, and defining results.

<table>
<thead>
<tr>
<th>Themes</th>
<th>Coding</th>
<th>Defining</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aesthetic Expression</td>
<td>Satisfying creative expression, Diversified forms of expression, Interactivity, Interestingness</td>
<td>Artists can unleash more of their aesthetic expression</td>
</tr>
<tr>
<td>Aesthetic Concept</td>
<td>The artist’s creative philosophy, The artist’s self-aesthetic, Spiritual core, Self-subjective aesthetic awareness, Realisation of creative philosophy</td>
<td>The artist develops their own aesthetic</td>
</tr>
<tr>
<td>Aesthetic Space</td>
<td>Aesthetic space, Aesthetic diversity</td>
<td>Artists have more aesthetic options</td>
</tr>
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</table>

### Table 3. Self-actualisation needs, coding themes, and defining results.

<table>
<thead>
<tr>
<th>Themes</th>
<th>Coding</th>
<th>Defining</th>
</tr>
</thead>
<tbody>
<tr>
<td>Innovative Thinking</td>
<td>Inspiring creative mindset, Active minds, Dispersing the mind, Inspiration</td>
<td>Artists are able to think outside the box and find more innovative ways of doing their work</td>
</tr>
<tr>
<td>Creative Ability</td>
<td>Creativity, Releasing, Originality</td>
<td>Improving the creative capacity of artists to create more new sculptural forms</td>
</tr>
<tr>
<td>Innovative Drive</td>
<td>Sense of achievement, Motivating</td>
<td>Giving artists more incentive to produce innovative sculptures</td>
</tr>
</tbody>
</table>
A preliminary framework for the relationship between the use of multimedia effects in sculpture and Maslow’s hierarchy of needs was devised in the above section. Through the interviews and the analysis of the interview data, the preliminary conclusion is that artists indicate that the use of multimedia effects in sculpture creation can satisfy their personal aesthetic expression, form their own subjective and creative aesthetic concepts, and expand the diversity of the aesthetic space, thus satisfying the aesthetic needs of artists; they indicate that the use of multimedia effects in sculpture creation can inspire innovative thinking in the process, stimulate creative ability, and enhance the innovative drive, thus satisfying the artist’s need for self-actualisation.

Therefore, in the framework, the “multimedia effects on sculpture creation can satisfy the artist’s own aesthetic and self-actualisation needs” is valid. However, the factors that influence the application of multimedia effects in sculpture creation and Maslow’s hierarchy of needs are different. The factors that were collected and analysed after the interviews are Aesthetic Expression, Aesthetic Concept, Aesthetic Space, Innovative Thinking, Creative Ability, and Innovative Drive.

The study framework will be redrawn after analysis in conjunction with the post-test. The second question, “What are the Multimedia Effects to be utilised on Sculpture Creation Inspired by Maslow’s Hierarchy of Needs?” was extracted and coded from the collected interview responses to answer.

The two tables below (Tables 4 and 5) code the multimedia effects that traditional sculpture artists are aware of using in their sculpture creation and the multimedia effects that multimedia sculpture artists have used in their sculpture creation. After comparing these two sets of codes, it is clear that four main forms of multimedia effects are currently used in the creation of sculpture: light, audio, video and graphics.

Table 4. The use of multimedia effects in sculpture as understood by traditional sculpture artists.

<table>
<thead>
<tr>
<th>Artists</th>
<th>Multimedia Effects</th>
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<tbody>
<tr>
<td></td>
<td>Light</td>
</tr>
<tr>
<td>Artist A</td>
<td>√</td>
</tr>
<tr>
<td>Artist B</td>
<td>√</td>
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<tr>
<td>Artist C</td>
<td>√</td>
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<tr>
<td>Artist D</td>
<td>√</td>
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<tr>
<td>Artist E</td>
<td>√</td>
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<tr>
<td>Artist F</td>
<td>√</td>
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</table>

Table 5. The use of multimedia effects in sculpture as understood by multimedia sculpture artists.

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<td>√</td>
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<tr>
<td>Artist D</td>
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<td>Artist E</td>
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<tr>
<td>Artist F</td>
<td>√</td>
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</tbody>
</table>

6. Discussion and Conclusions

After a preliminary study of the topic, it can be found that the use of multimedia effects in sculpture has a positive impact on the satisfaction of the artists’ aesthetic and self-actualisation needs.
In the interview, 10 out of the 12 artists interviewed fully agreed that the use of multimedia effects in sculpture creation can satisfy their own aesthetic and self-actualisation needs, while the other two artists held different opinions. Four out of the six traditional sculpture artists agreed that the use of multimedia effects in sculpture creation can satisfy the artist’s aesthetic and self-actualisation needs; one artist was neutral, believing that the use of materials depends on the content the artist is seeking; one artist agreed that it can satisfy the self-actualisation needs, but not aesthetic needs because he was not interested in multimedia effects himself; and all six multimedia artists agreed that the use of multimedia effects in sculpture can satisfy the aesthetic and self-actualisation needs of the artist.

Both the traditional and multimedia artists interviewed generally felt that the use of multimedia effects in sculpture could satisfy their own aesthetic and self-actualisation needs. The main factors are: satisfying their aesthetic expression, forming their own subjective and creative aesthetic concepts, and expanding the diversity of the aesthetic space, thus satisfying the aesthetic needs of artists; they indicate that the use of multimedia effects in sculpture creation can inspire innovative thinking in the process, stimulate creative ability, and enhance the innovative drive, thus satisfying the artist’s need for self-actualisation. The results of the analysis were summarised in six thematic groups: Aesthetic Expression, Aesthetic Concept, Aesthetic Space, Innovative Thinking, Creative Ability, and Innovative Drive. In the interviews, the artists generally identified light, audio, video and graphic as multimedia effects that could be used in sculpture. Therefore, the use of multimedia effects in sculpture can help artists improve their aesthetic potential and innovative creative ability, prompting them to create more developmental artworks and promote the positive development of sculpture art.

In the future, I will continue to complete the collection and analysis of the post-test and compare it with the pre-test to draw conclusions. The analysis of the post-test will help me to find the positive impact of the use of multimedia effects in sculpture creation and to in-depth explore the relationship between the use of multimedia effects in sculpture and Maslow’s hierarchy of needs.

**Author Contributions:** Conceptualization, X.Y.L. and K.M.C.; methodology, X.Y.L. and K.M.C.; formal analysis, X.Y.L.; investigation, X.Y.L.; resources, X.Y.L.; data curation, X.Y.L.; writing—original draft preparation, X.Y.L.; writing—review and editing, K.M.C. and X.Y.L.; visualization, X.Y.L.; supervision, K.M.C. All authors have read and agreed to the published version of the manuscript.

**Funding:** This research received no external funding.

**Institutional Review Board Statement:** Not applicable.

**Informed Consent Statement:** Not applicable.

**Data Availability Statement:** The data presented in this study are available on request from the corresponding author.

**Acknowledgments:** This study was completed under my supervisor’s kind care and careful guidance, Cheng Kin Meng. I want to express my sincere gratitude and respect to Cheng Kin Meng for his serious scientific attitude, rigorous academic spirit, and dedication to excellence. Cheng Kin Meng provided me with careful academic guidance and gave me great encouragement and support in spirit. I would also like to thank the artists who participated in my research, as it was thanks to your help and support that I was able to overcome one difficulty or doubt after another. Finally, I would like to thank my family for being my most reliable support and supporting my research work without asking for anything in return.

**Conflicts of Interest:** The authors declare no conflict of interest.

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