

9 An Empirical Study of 2D Static Computer Art

An Investigation of How Contemporary Computer Art Is Affected by Media

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BACKGROUND AND PROBLEM STATEMENT

We are in the act of forming the Technology & Electronics society: a society which cultural, psychological, social and economical facets take shape according to the development of technology and electronics, specially in the fields of computer and information. The influence of these mighty functions, produced by the bit, is prevalent in all the science and social courses; in fact, it has already invaded the artistic world. It did not take long after the birth of the computer for it to become the new tool for artistic production; it revolutionized the traditional production habits, production procedures, methods of expression and the work place in artistic creativity, thus bringing the tides of change in the artistic context and attitude towards the study of the Arts.

Benjamin (1961) once made an in-depth expository on the developments made by scientific technology in reproduction technology and the artistic production methods (specially in the fields of still and motion picture taking). P. Mattick Jr. (1993) continued the discussion started by Benjamin, made deeper inroads in the discussion of the influence of scientific technological equipment on artistic work. Rosler (1979) also expounded, that under the changes in production tools, production habits, production procedures, methods of expression and production pace, which bear the trademarks of post-modern culture; computer art evolved new forms, new methods in artistic reasoning, new artistic philosophies which brought about the new relation between the Arts, its appreciation and the consumer.

Mitchell (1986), Ardono (1975) and Burns (1990) made some suggestions and criticisms to the arguments presented by Benjamin. They were certain that Benjamin re-discussed Contemporary Arts from the technological view point and believed that such method of discussion accurately faces the actual environment of the Contemporary Arts. For in reality, how do we make an accurate examination of the advancement in the concept and the attitude which were brought about by these equipment; how are the artistic concepts and reasoning methods established since the literacy of mankind changed and challenged by the actual modification undergone by the equipment?

This research is based on the important points of view presented by Benjamin, as well as the criticisms made on Benjamin's view points. We shall form our conclusions from the experiments made through the analysis of the phenomenon produced from the experiment results shall be obtained by the inductive method, and establish more

objective bases for arguments in the discussion of the present stage of computer art. A concrete examination of the influences that are directly caused by production tool of the production work and reasoning method in the actual procedures used in artistic production; then, through deductive reasoning, reconcile the phenomena gained by deductive reasoning with the available theories and references to conduct a more in-depth discussion. Furthermore, we shall discuss the in-depth innovations in the aesthetic and reasoning methods that came after the experiment, where the production models and procedural changes were discovered.

1.0 Procedures and Findings of the Experiment

The objective of the experiments conducted in this research is to discuss the direct and indirect influences of the equipment used on the habitual acts and procedures occurring during artistic production; also, understand from the changes in production action, the possible influences of experimental action on the structure and form of artistic production, as well as on the artistic context; and then, analyze the possible relationship between these changes and modern art. Based on the premises provided, let us clarify our problems from the references and theories that we possess, as well as determine the importance and theoretical basis of the problems; and then, from the experimental design of the experiments conducted, find out the actual influences caused by production tool on artistic production action; and induce the actual foundation and attribute of the action found in the application of computer art in production work.

The first part of the experiment is the in-depth interview. The preliminary principal conclusions gathered by this paper from the interviews conducted with parties who were involved in the teaching and production of computer art are as shown below:

- Computer art as a production tool is a replacement of the traditional production tools used. Learning to use the new tools is merely an act of shifting away from the out-dated tools. Mental conditioning for the procedures should take an adjustment and adaptation to the new tools; however, the producing party, himself, will find his own equilibrium in the new procedure.
- Computer art as a production tool has further uplifted multi-faceted and probability aspects of innovation; while computer implements have shortened the time for manual operations. When all the procedures involved may be achieved by a single command or a single movement of the computer, then the producer learns to produce more innovative ideas in a short period of time.
- With computer art as a production tool, the producer losses his participation in the production process; for the computer thinks in a direct manner, once a command has been chosen, then the computer directly executes the command made; thus, the producer, having lost his personal participation in the production process, also losses the possibility of finding more opportunities in the process.
- In the future, computer art will also consolidate other aspects, e.g. visual psychological and scientific concepts; and will gradually expand its realms.

The second part is the verbal analysis. The principal function of verbal analysis is to obtain rich information from the actual operation process through the complete recording and actual observation made on the test participant; and discover the common patterns of production action involved from the deep discussions conducted. Hence, the main expectation of this experimental design is to be able to find attributes and patterns of changes in the action that occur when producing through a computer media. Further, it is hoped that discovery of the more difficult questions for discussion in the other experimental methods, through the survey questionnaires designed and the mutual verification and examination of the data of the above two experiments; specially, the influence of the media on the production action, that is being stressed in this research.

The initial analyses obtained through Verbal Analysis 1 and Verbal Analysis 2, we can easily see that there is a vast difference in the verbal data obtained from the different production tool used. At the same time, if a more detailed study is conducted on the operational action of the computerized production, then we may discover that the actual type of almost all of the singular actions in operational action encountered is the mechanical action. It is given the term mechanical action because this is a production action that has not emerged during the time of traditional production action, but is now materialized by the computer. It may also be said that such action was completed at the direction of the computer operator, the producer is not in any involved during the entire process of the experiment. Such as, scan, copy, contrast, color balance....these mechanical actions were unitized and systematized under the traditional tools, after which they were transformed into a singular consolidated mechanical black box.

As for these black boxes, the producer doesn't have to understand fully nor understand its inside contents, nor come in contact with it. The exterior of the black box looks like the operating panel of a vending machine, and after a mechanized selection of an action, the black box shall automatically execute the action on the other end. Let us take a verbal data, LINE 236-262 for an example to have a clearer understanding of the relationship.

236. The page earlier scanned.

237. Maybe I scan this page with the eye, as it has better dilation power and feels just suitable for the entire page.

238. Choose this portion first, I want to put it on this side to check its results.

240. Probable position, adjust composite controls.

Furthermore, we shall divide these verbal data into ACTION A.B.C. for the record.

A means search for graph, scan graphic image and search out the graphic image data already in file. The author may know or may not know the contents of the graphic image file, that is being searched or that has been scanned or that is stored in the compact disk bank. This will be the raw data of the producer. These images will consolidate the thoughts of the producer as well as provide him with new stimuli.

B means the adjustments made on the graphic image, adjustments on the results on the screen, etc. When the producer has processed the information of Action A data, then the action procedure and the measures involved in obtaining the final object is completed.

The principal action in this phase is to make or revise each ACTION A to fit the objective. Therefore the action in this phase and ACTION A will both repeatedly appear during the process of the completion of a product. The frequency of such repetition varies with the different products involved.

C means the composite work done on the image; this includes the revisions made on the result while the composite work is done. The treatment conducted on different images is to take two separate images, then effect the different degrees of adjustment needed to suit the producers demand, and come up with a finish product. The resultant image in ACTION C may have to undergo the cycle again from ACTION A as needed by the production. If we term the entire process from image search, image scan, screen adjustment, to the completion of the composite image as a cycle; a complete-phased work cycle, then, is the image that is completed in phases which may undergo revision and other imagery work again based on the need of the entire picture. The model structure for the ABC production actions is as follows:

2.0 Production Action Model

The production experiment procedures for verbal analysis may follow the cycle method, the symbols present the entire production action:

3.0 Production Action Cycle

The Production action cycle of ACTION A. B. form the principal action model of the computer production process. So for this two-hour long production, we shall not delve into the context of the product and the considerations involved in the context. Viewing the action by itself, the actual action model of a computerized production action is not very complicated. Basically, it is the repetitive cycle of several simplified actions; therefore, this simple action basic model reduces the more complicated and hard-to-control former operational action in production action.

Another matter that deserves attention is the fact that at the completion of each cycle, it is already a completed basic action model. Just by viewing from the production level, removing the CYCLE 8 AND 9 from the entire production procedure does not affect the structure of the model, it can still remain as a complete action structure. The reason behind this is that the producer massively uses ready-made images, each individual image is a complete image in itself; therefore, other than implementing some minor revisions, the producer does not really tackle the basic problem presented by the image. So under this condition, each CYCLE is just a link in the production action, removing one link does not affect the entire structure.

At the same time, let us analyze the production models made using the traditional and the computerized tools:

4.0 Link structure of the production action using computerized production tool.

5.0 Series structure of the production action using traditional production tools.

In discovering this action model and understanding the action structures of the different tools, we may further discuss the role of the computer in the production process, and may be able to more clearly see the varying logic of these different production tools. The logic behind the traditional production process takes the production expectation for a premise, then, the producer draws up a concept blueprint in his mind. To realize this blueprint, the producer then considers the technique and methods he needs to use, afterwards, he applies technique on his blueprint to attain his objective. In using the computer as a production tool, the producer first searches and considers the data he possesses, the methods he may apply, what the methods he has can do, and then, he begins to work on the blueprint or made large revisions on the blueprint to achieve his final objective. There is an implied rule in the production methods of these two situations, let us simplify the two production rules.

6.0 Traditional Production Rule

7.0 Computerized Production Rule

Focusing on the different production model and production format of these two groups; discussion may be divided into the two different angles; namely, time sequence and thought sequence:

Time Sequence:

Between the link and series structure of production action and their production rules; we find that the time sequence and logic are very clear. First a thought is formed; then when the idea to be expressed is definite, production is started. Further, each production is established on top of another action, creating a series of vertical linear structure.

In the comparison of the computerized production method and the traditional production method we find that the logic is reversed. The producer first considers what methods he has, and then he completes his blueprint from the methods available. And according to the discussions we made, each action cycle is independent and does not rely on other action bases. So its action model is reciprocal and even-leveled.

Therefore, we can see from the time-based order that the computerized production action method destroyed the orderly and timely procedure and rule. The major cause of this destruction is the technical problem in computer art. Technique has changed the operation method of the production action. And structural relationship built on the continuity of time has become an easily overcome technical problem for the computer, and is analyzed in the computer art production action.

Man's consciousness is not a matter of space but a matter of time. And the nature of man's existence has time value; but modern technology has a speed enhancement and time compression function. In the traditional production action, technical method is important because technique is the measure of artistic ability; one must prepare a high degree of

technical familiarity in order for one to fully express the artistic spirit. In which case, the nature of art includes technique and context. The force of these two realms affects and stimulates each other. Moreover, the artistic ability implied in the technique is based on the time-remembered handicraft artistry that had existed since the ancient times; also in existence is the result of the memory of the experiences gathered in time. So the procedure in this technique alone includes not only time consciousness, but also has a blend of the memory and needs of the human psyche; it implies an orderly consciousness structure.

But in the computerized process, the problem with technique has been simplified if not overcome. The black box of these mechanical actions we found has solved the problem regarding technical method through scientific technology. The order of time and memory found in the original technique has been forced to oblivion, the important ritual procedure of artistic production no longer exists, and the old artistic rules begin to face a threat.

Thought Sequence:

In the traditional production rule, concept blueprint is the first step of the artistic production. This is a full and imperative requirement. Its existence dictates the existence of the artistic production. But in the application of computer tools into artistic production put to test the uncontested position of concept blueprint. The producer slowly shift to starting with the consideration of what technical method he possesses, he would first ask what he has in hand, and what can the computer do. The expansion of the vague area in the relationship between the producer and the tool has added a new restriction to artistic production. This restriction has on the contrary magnified the importance of technical method; and the consideration of the position of the phase structure is based on the concept blueprint. The existence of this situation under the conditions of insufficient innovative ability can easily cause the suppression of technique in the context of artistic production, piled within the product, the technique is finally lost and the artistic production becomes a product of mechanical operation.

Furthermore, technical method restricts the expression of context in the artistic production. Originally, the most treasured quality in art that differentiates it from a commercial product is its ability to fully express its idea. On this consideration, the computer on the contrary puts a constraint, a restrictive condition to the artistic production.

CONCLUSION AND DISCUSSION

In the past, the real physical mode of existence instituted a clear and simple system of actual confirmation. The sequence of this object, as described by Foucault (1973), is that the world as we know it, uses a customized organization and series of time and space. But, in the face of computer art, a foundation, that is composed of a complexity of elements, cannot be provided. There is not a structure, nor concept, nor an analysis distinguish the different and the similar, that can definitely and truly virtualize the relationship between the object and its reproduction. Sequence is separate from the space

from which sequence is expressed. The category and the relationship between the object and its like matters so defined in sequence; and the closeness between the same categories. This form of emptiness does not only exist in the context of the product and cause repercussion on artistry, but also puts to test the past global sequence.

Our world lacks realism because we are unable to really believe where reality begins and ends; not only does this make the product unrealistic, the object unrealistic, but it also makes the image and the reproducible image unrealistic to the society and the world. Because it does not only exist in the artistic circles, emptiness is like the spores of a fungus, in this stage of scientific production, it brings about the retardation of the speed enhancement of the black box.

To summarize the above, we arrive to the following conclusions on the identification of the influence of the production tool on the production action from the analysis and study of the artistic attributes:

The production action point of view:

The structural reversal (Graph 1-7 and 1-8) of the production action made under the production rule of the computer tool and the changes in the production rule that is caused by the expansion of the vague area between the series and the producer and the tool, transformed the artistic structuring action and the reasoning logic, as well as directly influence the silent, two-dimensional computer art image.

The computer art attributes:

The special nature of the computer tool changed the artistic methods and concepts of the past. The change brought about by the use of computer as a medium for the production action caused man to make innovations in the models used, which further resulted to changes in the surface and internal attributes of the computer image.

Discussion of the entirety.

Computer art is an art still undergoing development, it brought along the entry of the spirit of a new era exiting in the new tool into the artistic realms. It will use different methods and attitudes to face the new era and new problems and can solve the practices in production and reasoning, and alike, it will be bringing in some new restrictions and problems. The reasoning models past down to use puts us are inside the traditional production tools, the habits in production arts and the knowledge possessed were established from the series of experiences and intellectual learning; and as a rationale course of action, thus the standards for criteria used in the realms of philosophical reasoning and artistic philosophy were formed.

At present, the computer tool kept in pace with science development in occupying the life experiences of man in the scientific and capitalist world. It guided the user to use different production habits and reasoning logic to face the new sequence, also it invaded the high levels of the human cognitive reasoning and influence the artistic and philosophical values and judgment of men. Implements will be developed according to the demands of mankind, but implements will also the action and attitude of mankind. In

viewing from the greater angle, in the history of mankind, there is a continuity of important ideas and inventions that greatly influenced the human society. However, after a period of time, after the human intellect and psyche has been influenced and has accepted these new stimuli, the effect of such stimuli and influence will fade in time; for they have already become deeply ingrained in the human reasoning and lifestyle and standardized the human structure as well as became standardized by human logic.

As for the present, where we often face the influences of the human experiences and intellect of the contemporary scientific technology, contrasting ideas that varies widely often occur; this is because we are now in the actual situation where in two or more logical sequences are in disagreement with each other.

This study is definitely unable to determine which tool or logical sequence has good or bad values, and does not consider that it can discuss a definite truth. For the objective of this study is to provide a different perspective, through a more objective method, from which we may try to understand how to express the modern day artistic attributes in this era of computer substitution; as well as how the production tool may express the product of the reasoning and series of experiences of the modern man. It is further hoped that this study may trigger the birth of future studies on the same subject matter, and that varying perspectives and varying stands taken in the discussion can bring about relevant suggestions for understanding.

FUTURE STUDIES

The principal investigation of this paper is to attempt to understand, through the tools used and from the changes in production action, how the human intellect and value structure are influenced by the operational actions of the tool. And how these influences are expressed in the internal and external problems of computer art. Experiment shows that more objective bases of argument, inducted several phenomena and conclusions. It is hoped that utilizing more objective data can prevent image analysis by means of methodology and a transcendental intellectual sophistication.

We used some research methods to make some realistic discussion of the still-changing computer art, these discussions will also help provide men another angle from which they may understand the reciprocal relationship between the tool and artistry, as well as the multiple factors that form the attributes of the present-day computer art.

At the same time, we are discovered in this research the following major subject matters that deserve further studies, which are also the future trends of development of this research:

- To construct a more clear-cut and deeper understanding and explanation of the Fusion Psychological theories regarding the influence of the production tool on the inward psychological thought process. Further, to explain the expression and execution of the concepts contained in the art object based on the psychological theories.

- At present, there are a lot of analytical methods developed by multiple researches conducted on verbal analysis in the realms of cognitive psychology and design. Therefore, the verbal analysis on the basis of the puritanical analytical method, applied on verbal analysis experiments for artistic production to obtain discussion and analysis, is a topic worthy of future research.
- Taking the perspective from the historical point of view, has the tools used in the history of the arts also faced the revolution of scientific technology, and has this technology infiltrated the production thought structures? And what are the cultural conditions that bring about the emergence of these tools? How does it influence the intellectual experiences of men? Future research hopes to be able to take these suggestions into the human history and discuss them from a greater range of vision; further, understand the complicated relationship between the material culture and art from a full-view perspective.

