

## Reflecting the Optimization Theory and Digitalization On Applied Arts

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### **Introduction:**

The fields of contemporary Applied Arts are witnessing methods and patterns of non-traditional artistic works differ from what we gained through successive periods.

The cotemporary applied arts stand in front of currents and trends form for a deniable resulting from cumulative historic characters of artistic works during previous periods.

The world is in constant evaluation, where theories show inventions of modern trends in fields of arts, so it is necessary that applied arts must be affected by such rapid and prosecution currents, as the applied arts designers must face the present and the challenges and know how to identify recent trends and to select which features and technical methods are suitable for applied arts.

### **Key words:**

Optimization Theory-Mathematical theory- Design Processes-Typical Design-Digital art.

### **Research Problem:**

The development of technical methods and applications programs that set digital parameters for the production of applied arts led to the reduction of the emergence of innovative artistic methods that bear the characteristics of applied arts. At the same time the use of these advanced digital applications has led to minimize defects of selecting optimal design and decreasing tolerances of quality on selecting products or design experiments which increase product costs.

### **Applied Arts:**

Applied arts are well known as a scientific path that blends art and practice, as some act known as the executive engineering, which aim at producing functional products which seem to be beautiful.

In addition to the above there must be the availability of engineering and applied skills that can produce such works besides artistic sense, beauty, and convenience.

### **Optimization Theory:**

To achieve optimized design that realizes all technical and artistic aspects and with respect to the properties of materials used in production, it was naturally to use more of facilities to achieve optimally which exceeds the manual and mental works.

Optimization is interpreted as a consistent with mathematical theory which began to apply gradually to mandatory especially when conducting design processing. This has confirmed the theoretical ideal set of mathematical calculations related 'Maxima' and lower 'Minima'.

In design processes whether dimensional measurements or calculations of properties and strength of materials or calculations of design functions, such as speed, temperature, weight or numerical calculations of applied ergonomics, it was natural to depend on digital standard parameters inferred to achieve optimal design.

**Optimal Design:**

Design is several repetitive processes starts with the definition of the problem, analysis, refinement, and access to a design model that leads to solution of the problem. Usually there is more than one solution, the first actually is not the best, and there must be several successive and consecutive processes to achieve the optimal

**Typical Design:**

In typical design, designer emphasize the ideal of design in terms of form and general specifications where the variables are digital specified for the functional idealism is often subjected to factors: cost-weight-reliability, and manufacture capability, and all are imperative in designing and subjected to ideal standards.

**Design specifications optimization:**

Design specifications are essential in determining optimal design in terms of interaction through parts and components .Moreover the results of absolute choices arbitrary decision leading to sub-optimization. Design specifications can be subjected to simple discussion and negotiation so that the main objective adds more functionality and the rest of the properties are reduced. The history of technology is full of engineers and designers depended on inspiration and intuition to achieve higher features in design a tremendous increase in knowledge and rapid technological development of tools and machinery that led to more tremendous innovations. All designs in the past have been trying to realize optimal design by improving existing designs. The design specifications that were prepared by designer or with participation of customer should be based on the digital sittings not on forms or virtual designs to avoid randomness in selecting the optimal design.

**Traditional methods of evaluating design alternatives and relying on measurements parameters:**

In any case, even designers rely on sense of honesty for evaluating alternatives, they cannot neglect norms, criteria or parameters. Some designers have relied on the overall estimations of choosing design alternatives such as "good" or "acceptable" for each proposed design or idea, which led to inaccurate choices. This relied on:

1-Realized functional value.

2-Esteem value.

3-Cost value.

The above criteria should be digitized so that the analysis be more accurate.

**Scales of measurements:**

Post experience in evaluating design alternatives has been based on measurements system by using estimating numerals to represent phenomena and to process numbers for representing events without limiting this representation on numbers. Using numbers are easy to understand and deal with. There is no need to event new marks for using the field of measurements. Designers have used weights tables and mathematical processing estimates for design alternatives to choose the optimal design.

**Creativity and optimal design:**

Creativity is a new organization of design elements as seen by designer himself. This kind of organization may include existing plan. However designer must access that by digital methods. Optimal design and design of experiments:

Optimal design is the result of experimental design that meets some statistical and digital standards. Experimental design requires statistical parameters and criteria related to all aspects of product technology.

**Digital Art:**

These are the art that use computers and rely on digital determinants whether in elements of writing, images or drawings a combination of technology and creativity led to change in the culture of expression and visual subject.

Digital art is a work of art that uses digital technology as part of creativity or presentation. Digital visual art, both plastic and applied consists of arranged two dimensions or three dimensions that reflect how to draw with pencil and paper.

**Austen Museum of Digital Arts (AMODA):**

Located in "Austin" Texas, USA, which is the first specialized museum to display digital art. It was established in 1997 in response to abundance of digital art works. The multiplicity of its products and the absence of places and halls to exhibit such works, museums did not provide "Austin" only local works, but to bring digital works around the world.

The most important technical features of digital art:

The most important features are the use of contemporary energies such as laser and electricity as well as matching with latest scientific theories and applied innovations.

**Digital art work theme:**

The subject of digital art works is characterized by freedom, which is a feature of contemporary art the rule of choice is increasing the breadth of the traditional arts, and we may note the multiple and widespread areas in which computer and applied programs in general as its multiple capabilities and competencies allowed to cover a lot of diverse artistic subjects.

**Recommendations:**

\*Optimal design results from experimental designs which are being subjected to multi design processes and through digital parameters we can achieve optimal design.

\*Digital art accesses contemporary energies, but it is difficult to replace hand craft products with only digital methods.

\*Applied Arts educational subjects must include digital applications programs.

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