Develop a design methodology that supports innovation and creative abilities among design students

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Summary

The rapid changes and developments and the recent discoveries in science and thought directly influence design, which requires the development of methodologies and methods of design education to increase the ability of students to creativity and innovation. Design and methodical thought are elements of creativity and innovation, and the process of design in the creative process itself is a black box. We can look at the stages of the design process from start to finish, but the creative phase itself is still largely opaque tools, And that the development of methodology for creativity and innovation helps the student to understand the stages and methods of innovation and this through the portal transparent box.

The problem of research is whether the methodology of design education and the stages of design process evolve according to the technical and environmental development variables and variables in the relevant contexts?

The objective of the research is to develop the creative and thinking skills of the design students and to develop a methodology for teaching design that supports innovative skills.

The research's importance is that the continuous development in the design contexts and its determinants and data needs to be compared in the design methodology and education, in addition to training the student to deal with different sources of inspiration for the development of creative thinking.

The research assumes that the development of creative abilities develops the capacity of design students to innovate, and the development of a clear design methodology for design students that supports self-learning skills and continuous development of their skills.

key words:

Methodology - Creativity - Education –Design- Simulation.

Research Items

1 / the development of ways of thinking and creativity as one of the stages of the design process: Visual feed / simulation / redesign

2 / Methodology of design education and the development of creative thinking.

A simulation methodology was developed - both partial and total - and also redesign. By applying the methodology of simulation and redesign developed by the researcher to a number of design students in consecutive years of study and comparing results with students who did not apply the same methodology, the results were very clear at the level of evaluation the students

The methodology takes the same steps as the design process, starting with the inputs and ending with the outputs, and between them the creative processes (simulations and redesign) are carried out, and depend on continuous improvement of each stage.

1- Developing the methodology of thinking and creativity as one of the stages of the design process:

1-1 **Visual feed:**

The sight of the designer is the basic sense in the perception of the environment and the acquisition of experience and as the language spoken words and letters, the language of design is form and line.

The process of visual perception depends on the physiological abilities of the designer, which reflects the amount of visual and cognitive stock in the designer's subconscious as well as the analytical skills of the mind, which are individual factors that vary according to different cultures and the surrounding environment. Visual nutrition aims to enrich the visual dictionary of the design student and then Achieve visual development.

Development of visual culture: We mean developing the ability of the design student to recognize the visual, cognitive, structural and structural design elements by applying the theoretical concepts of the design principles and transforming the mental images of nature and environment into the language of design. Therefore, the visual reading of the form is a more understanding of the relation of the part to the whole and the proportions and the construction of elements within a specific form.

The research aims to develop the skills of visual culture through the development of visual perception skills and visual reading skills

Visual production skills: The research also deals with the role of nature in the development of visual culture as a source of inspiration in its integration in systems, relations and construction, because it created God Almighty, the Exalted of the Heavens and the Earth. Praise be to God who made us think about the creation of the heavens and the earth.

And to provide the methodology of developing visual skills: - which depends on the translation of visual perceptions in the environment of the designer and read in the language of design and the conversion of all relationships to the origin of construction in the foundations of design and below we offer some models of the methodology of visual reading and then visual perception of environmental relations and examples of these foundations

boundaries Echoes Contradiction , level of scale -, Overlay and tangle, strong center .

1-2 Simulations: The theory of simulation remains the main focus in the practice of the design process and whatever the theory of design and methodology, but the designer - and in all approaches - works on the foundations of simulation in the subconscious but the difference is in the type of simulation that is working and jurisprudence. Theme or simulation content and simulation method.

• Realistic simulations that are transmitted directly through traditional ideas.

• Indirect abstract simulations which, within their content, refer to the philosophical values of the concept of abstraction, such as ancient civilizations,

The role of simulation in the development of creativity for design students:

 The paper relies on simulation as a tool to re-introduce the work through the elements of form, content, construction and the practice of stages and processes necessary to present ideas in a final product form, and where the most important problems of design students is to build and organize the skills and knowledge acquired to present ideas in its final form and transform them from the mental image to the physical form. Simulations support these skills so as to develop in parallel the ability to express ideas as well as the recognition of building systems and variables of design elements of form, size, position, direction, arrangement and assembly ......

1-3 Redesign:

The concept of redesign as a methodology of design education includes a variety of objectives and methodologies. It means the reconstruction of design elements so as to develop the thinking skills in finding alternatives in a framework of constants and variables in order to create a growing network of new ideas in order to improve the characteristics and functions of the new product and redesign. Alternatives and possible variables of the original design may be derived from the analysis of the product, and as a result of the analysis of the value paid in the direction of specific and clear changes or to meet social, technical or environmental variables and depending on each change the student presents alternatives and possibilities.

The stage of assessment of alternatives, which gives the student the ability to evaluate the real and objective design and thus recognize weaknesses and non-alignment in the design and gives the student the opportunity to play different roles between creative thinking and critical analytical and logical thinking, which earns knowledge and skills more mature in the exercise of design

By applying the simulation and redesign methodology to a number of design students in consecutive years of study and comparing results with students who did not apply the same methodology, the results were very clear at the level of student evaluation in terms of ability to express ideas, speed learning, development and rich ideas,

2- Developing a methodology for developing creative capabilities

The methodology takes the same steps as the design process, starting with the inputs and ending with the outputs. The creative processes (simulation and re-design) are dealt with in the first axis of the research. The methodology is based on continuous improvement of each stage.

I. Improved input

Through the development of visual skills through visual reading and visual perception and visual production

II. Improving operations

Developing the quality and style of design by providing the student with some skills and can be divided into stages that are arranged respectively as follows:

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Re-Design

Where the source of inspiration from the existing design and develop the student from the design idea

 -Analysis of the design already existing to its initial lines - to win the student the skill of reading the design and relations between lines - and then redrafting these lines in a new design

 -Access to and evaluation of design alternatives.

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Simulation

The student acquires visual skills to create an optical dictionary and is inspired by nature or any other source of inspiration, the so-called Out Side-In, to obtain the alphabetical design that is easy to install and reconstruct

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III. Improving Outputs

 Acquire physical and virtual output skills for ideas through specialized computer programs .. Implementation of prototypes - enable it to sense the mass and its relationship to vacuum.

Methodology for the development of creative abilities - Visual perception - Improving input - The mechanism of mental representation and mental imaging source researcher
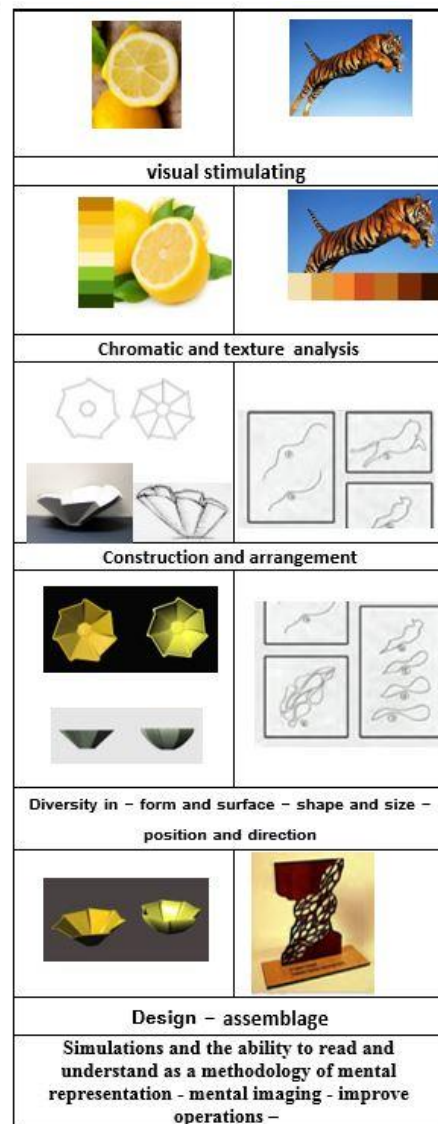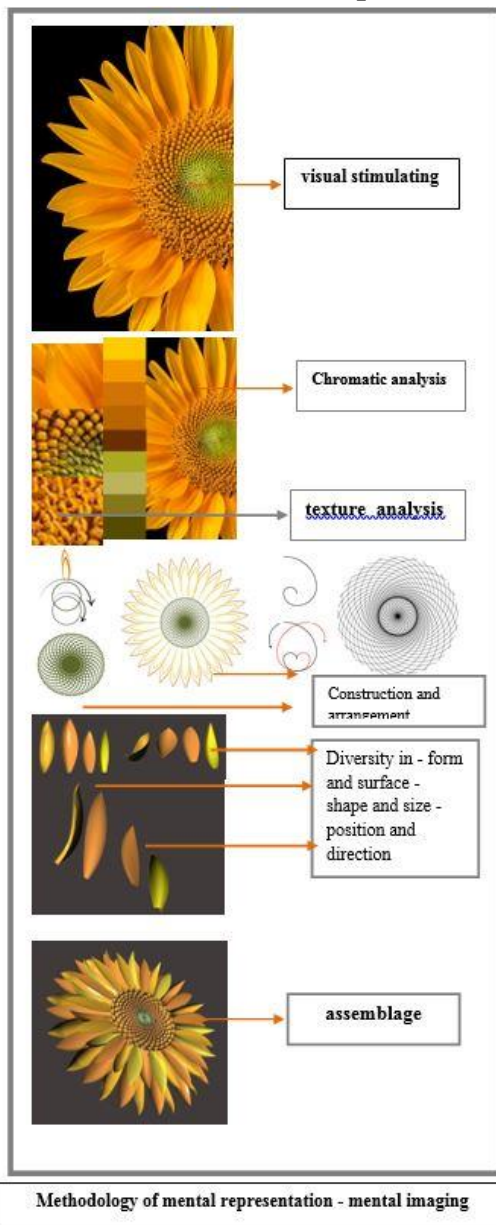
Student projects The methodology was implemented with them under the supervision of the researchers
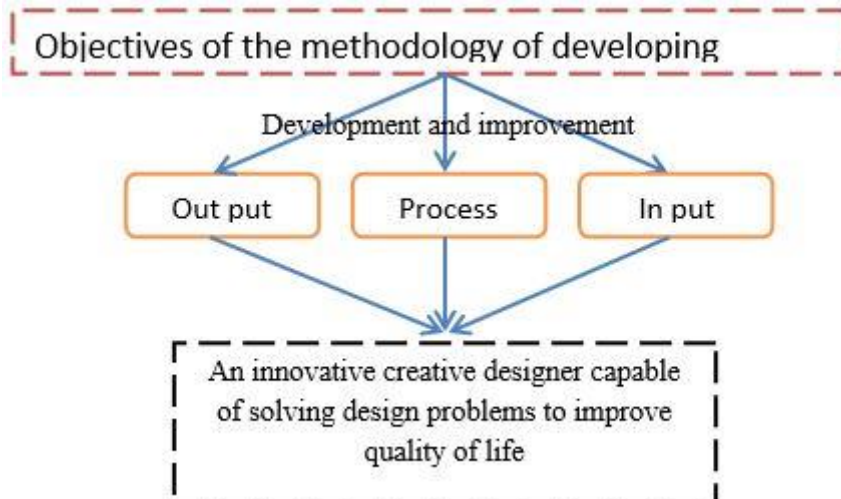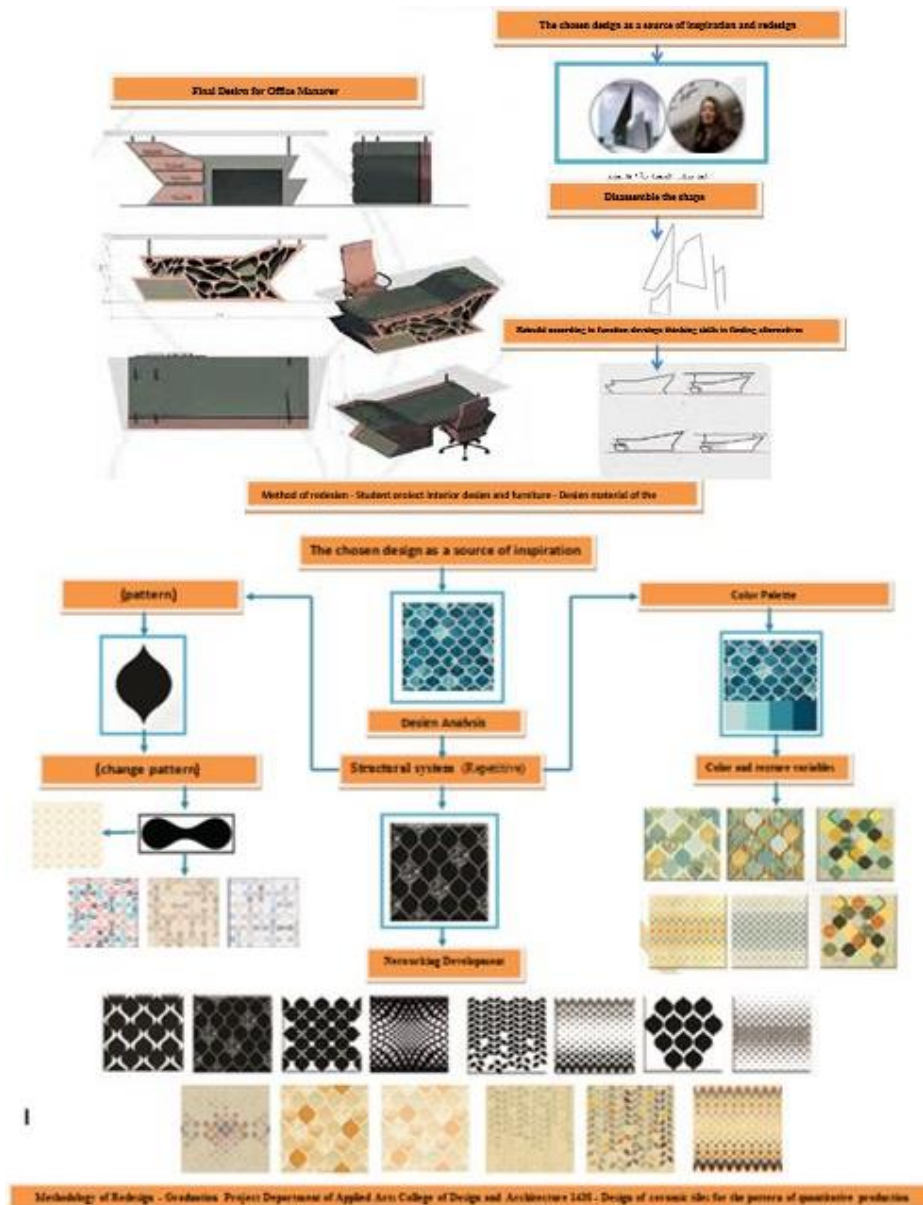
Results:

1 - The development of visual culture has a positive impact on the creative skills of design students in each of the abundance of ideas and diversity and flexibility.

2 - Nature is one of the most important sources of visual nutrition and is the first catalyst to develop the ability of the designer to recognize the foundations of design and construction systems.

3 - The design process in essence is a form of simulatioh, whether partial or total form or content of nature and strength is not only a model in its physical form, but also in the energy and movement.

Recommendations:

1 - There is a positive return to include studio courses concepts such as simulation and redesign as input to the design within the skills of pre-design students.

2 - If we want to build a creative designer we need to build a broad visual culture and develop the visual skills of visual reading and visual perception and production of design students.

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