

## **Developing Design Methodology Practices for industrial design ' Students**

**Dr. Kareem Saber Mustafa**

Lecturer in Industrial design Dept., Faculty of Applied Arts, Beni-Suef University, Egypt

Email: karim.designhome@aparts.bsu.edu.eg

### ***Paper History:***

**Paper received 11<sup>th</sup> February 2020, Accepted 26<sup>th</sup> March 2021, Published 1st of May 2021**

### ***Abstract:***

This paper describes a new design methodology that depends on merging between method mind mapping for solving the design problem, and an alternative table (morphological table) as a method to develop ideas and to help students in forming and composing different design factors to achieve design creativity. The researcher tends to use Analytical descriptive to reach the suggested method of developing ideas through a deep study of various design methods to reach an effective and easy method, and then ascertain the extent of its effectiveness by experimenting with it practically. The researcher tried this model on about two hundred students for consecutive three studying years by working in a faculty of Applied Arts Beni-Suef University - Egypt. The researcher depends on constant distance between points to measure variables easily. This trial shows up Great results in the ability of students to reaching creative and innovative solutions and designs easily and simply that proved the success and effectiveness of the proposed methodology. The design process that has been used by students consists of three main stages as which is called "hierarchical design" which starts after the problem identification stage. When the researcher Measuring student results over three years through the main assessment criteria which represented in innovation; Shape Balance; Creativity and Aesthetic aspects, he ascertains the effectiveness of the proposed method and achievement of the main objective of the research which represented reaching an easy and simple way that helps students to achieve designs creativity with less time and effort.

### ***References:***

1. Abdel Raheem, Mohamed (2010): "Creativity, its concept, its develop methods", the first conference for training standards construction, Saudi Arabian scientific association for training and human resources development, Saudi Arabia, pp. 13.
2. Ausbel, D. P. (1962): "Assumption theory of meaningful verbal learning and retention", Journal Of General Psychology, pp213-224.
3. Buzan, Tony. (2009): "Mind Maps ", Jarir library, first edition 2009.
4. Cannella, G.; Reiff, J. (1994): "Individual constructivist teacher education: teachers as empowered learners", Journal of Teacher Education Quarterly, pp27-38.
5. De Bono, Edward. (1991): "Lateral Thinking", Penguin, UK.
6. Hammed, Ahmed; Eid, Yasser (2018): "Morphological Analysis using as a methodology to create innovated improving methods", The Arab Association of Civilization and Islamic Arts, Egypt, pp29.
7. Harkirat, S., Dhindsa; Makarimi, Kasim; Anderson, Roger, Constructivist (2011): "Constructivist – visual mind map teaching approach and the quality of students' cognitive structures ", J Sci Educ Technol, volume 20,p186–200
8. DOI 10.1007/s10956-010-9245-4
9. Khairy, Osama. (2012): "Innovations and Creativity Management", Dar Al Raya for publishing, Amman, Jordan, pp. 39.
10. <https://discoverdesign.org/handbook> on 18th October 2019
11. <http://dstudio.ubc.ca/research/toolkit/processes/on10th> October 2019
12. <http://dstudio.ubc.ca/research/toolkit/processes> on12th October 2019

### ***Keywords:***

Mind Mapping, Morphological Analysis, Product Design, Design Process