Relevance of Experience in Color Design

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Abstract

Psychosomatic research and theory advise that if learners acquire through the experience by solving problems, they can learn both content and thinking strategies. Experience-based learning aims at problems that have multiple correct answers. Group of students identifies what they need to learn in order to solve a problem. They engage in self-directed learning and then apply their innovative knowledge to the problem where the teacher turns to facilitate the learning process rather than to provide knowledge. This paper focuses on deliberately designed learning events for an effective teaching methodology in the context of fundamental design theory. Even after an interactive session on "color theory and light", students were not able to confidently satisfy a client in a professional way to choose a color. This situation becomes even more interesting when you understand that such a response from students occurred despite getting positive feedback. Such a scenario reflects a major problem in teaching methodology that needs to be rectified. The proposed system aims to address such drawbacks.

Keywords: Experience based Teaching - learning system; design pedagogy; teach color theory; color –light relationship.

1. Introduction

Commonly used teaching methods are the lecture, the guided discussion method, and the demonstration-performance method. In a typical lesson, an effective teacher normally uses more than one method. Say, a demonstration is usually accompanied by a comprehensive explanation, which is essentially a lecture.

Usually, the syllabus needs to contain a depiction of each lesson, including objectives and achievement standards. The main concern of the tutor is to develop a student-oriented systematic teaching methodology to attain desired to teach learning objectives. An action plan to grab the new generation pupil is necessary to lead teachers and their pupils in a logical manner towards the desired goal.

"For the things we have to learn before we can do them, we learn by doing them", is a famous quotation by Aristotle [1]. Experiential education is an enunciated learning approach or the process of learning through experience, and is more specifically defined as "learning through reflection on doing". The concept of praxis is intimately connected to the philosophy of Aristotle. Praxis refers to the sphere of thought and action concerning the political and ethical life of the man that Aristotle contrasts to theory, the theoretical designs of logic, epistemology, and metaphysics. 'Praxis' stems from the Greek word "prasso" referring to 'doing' or 'acting' (The Cambridge Dictionary of Philosophy, 1995) [1]. Experiential learning focuses on the learning process for the individual than a group.

According to Kolb, knowledge is continuously gained through both personal and environmental experiences. Kolb states that in order to gain genuine knowledge from an experience, the learner must have four abilities [2].

• The learner must be willing to be actively involved in the experience;

• The learner must be able to reflect on the experience;

• The learner must possess and use analytical skills to conceptualize the experience; and

• The learner must possess decision-making and problem-solving skills in order to use the new ideas gained from the experience.

EXPERIENCE-BASED LEARNING is based on a set of assumptions about learning from experience. These have been identified by Boud, Cohen, and Walker (1993) as in [3]:

• Experience is the foundation of, and the stimulus for, learning

• Learners actively construct their own experience

• Learning is a holistic process

• Learning is socially and culturally constructed

• Learning is influenced by the socio-emotional context in which it occurs.

An effective teaching methodology could be summarized as a systematized student oriented continuous

task focused process abetted to lifelong learning of a learner.

Like in any other area of study, an effective teaching methodology could make an effective or significant impact in the analytical capacity of a design student. For instance; sometimes the student may not go beyond the limit of textbook or syllabus if the teacher is following conventional teaching methodology. Likewise, students of design may not know the impact of fundamental principles of design on the user /viewers of his/her work. And such design fledglings may not be able to conceive the relationship between each element of design.

In this paper, the author focuses on deliberately designed learning events for an effective teaching methodology in the context of fundamental design theory. Even after a face to face conversation on "color theory and light", students were not able to confidently select or suggest the right color for a design. Such a response from students makes a major problem in teaching methodology that needs to be corrected.

2. Related works

In 1996 an article "An analysis of frequency of hands-on experience and science achievement." has been published in Journal of research in Science Teaching by Patricia M. Stohr-Hunt Department of Education, University of Richmond, and Richmond, Virginia [8]. His study was designed to examine the relationship between the frequency of hands-on experiences and standardized science achievement scores.

Work of Cindy E and Hmelo-Silver "Problem-based learning: What and how do students learn?" has been published by Educational psychology review in 2004[9]. "Learning Styles and Learning Spaces: Enhancing Experiential Learning in Higher Education" depiction on the initial theories of John Dewey and Kurt Lewin, this study examine recent developments in theory and research on experiential learning in higher education is one of the notable work in 2005 by Kolb, Alice Y., and David A. Kolb[11]. Another remarkable work of the same year was "Neomillennial user experience design strategies: Utilizing social networking media to support "always on" learning styles." by Baird, Derek E., and Mercedes Fisher.in Journal of educational technology systems. Suggest neo millennial learning styles technologies that will enhance the delivery of instruction while meeting the needs of today's neo millennial learners [10].In 2007, Hodge. Elizabeth M and Maureen Ellis. Published an article "Making the Connection: Reinforcing Hands-on Learning through Hands-on Writing [5]." The study examines assessment and evaluation students

of undergraduate-level Pocket PC course, focused on experiential learning in an online learning environment.

2.1 Conventional methods

While after a pep talk on the topic, students respond undoubtedly to all the questions related to color and light. In interactive teaching methods [12], the students will have an interactive lecture class as well as related studio works, and then they should make presentations sheets on the same topic.

Figures: 1. Sample works and student's presentations.

. Figure 1(a).Sheet Drafted by Babin Babu(Sem 1 B.Arch), Color wheel indicates shades.

Figure 1(b).Sheet Drafted by Babin Babu(Sem 1 B.Arch), Color wheel indicates Tint.

Figure 1(c).Sheet Drafted by Babin Babu(Sem 1 B.Arch), Color wheel indicates Chrome.

It is observed that even after these interactive sessions and exercises, students are not able Work as a professional color designers or color consultants So, through this class a student can only be able to reach the third level that is knowledge level of "DIKW – Hierarchy" [4].

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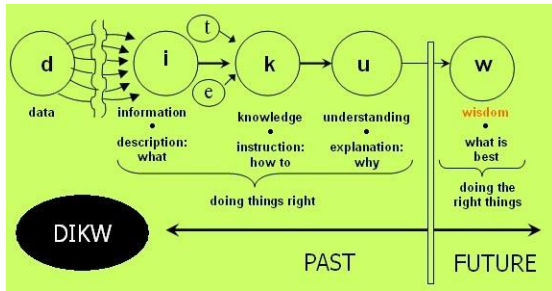
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Figure 2. Omegapower's ,own knowledge and understanding of DIKW model.

DIKW is a hierarchical model often depicted as a pyramid, with data at its base and wisdom at its zenith which describes relationships of priority (lower levels are focused on first), describes purported structural or functional relationships (lower levels comprise the material of higher levels). In a flow diagram of the DIKW hierarchy where d: data, i: information, k: knowledge, u: understanding, w: wisdom, t: tacit knowledge, and e: explicit knowledge.
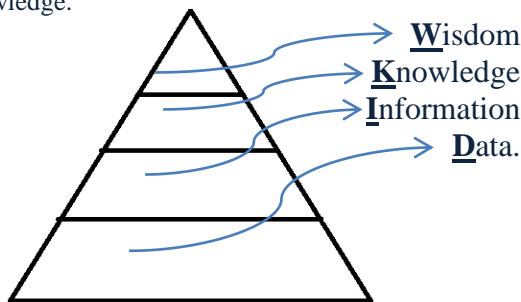

Figure 3. Illustration of DIKW Pyramid Model.

2.2. Statement of the Problem

After a chalk talk on the topic basic elements of design "color and light", and its kith and kin relationship, even though they gave a positive feedback on the topic, it is noticed that students are not able to confidently chose a color, or confidently suggest color and light for a design. This scenario is the driving factor to use EXPERIENCE-BASED LEARNING system with an objective evaluation of students design works with purposely designed Evaluation criteria.
"Do students who engage in experience-based learning system could solve a real life situation?"

3. Experience based teaching - Learning

Gave an interactive oration on chiaroscuro, warm cool and neutral light and color with its application in interior design and exercise on the color wheel, interior room painting; and make them practice color spectra and other tools of color designers.

Students happily learned new topics in depth, but 90% of students stuck to a question that whether they are able to select a cloth /fabrics from a textile if the interior of the shop is illuminated with warm light? Or do you have the self-assurance to choose a light for an interior of a lady saloon?

Even after a collective session on "color theory and light", students were not able to confidently fulfill a client's color need in a professional way. Such teaching methodology should be corrected by implementing proper and novel methods.

`Learning is the process whereby knowledge is created through the transformation of experience.'[7] (Kolb 1984, p. 41)

3.1. Experiential Exercise

Deliberately design a new way of teaching strategy for the same topic keeping the basic concept of experience based learning system in mind. Initially circulate the guideline and evaluation criteria and relate the course outcomes and program outcomes to the students. Instruct students to follow the guideline.

3.2. GROUP WORK GUIDE LINE TO STUDENTS

Students will be divided into 3 equal groups (so this is a group work). Each group has to make dummy model rooms of size (21x29x15cm). For the study purpose, the walls, ceiling and ground color could be changed. And rooms should be illuminated with warm light (2700-3200k), cool light (5000-6500k) and neutral lights (4500k).
Each student presents a sheet about his/her own observation, with oral presentation and share the experience of his or her study in the class.

4. Discussion

Figure 4   Effect of color on light

Effect of color on light
Figures: 4. the color change of a white colored room in different light.

4(a) The color change in white room illuminated with warm light.

4b) The color change in white room illuminated with neutral light.

4(c) The color change in white room illuminated with cool light.

Student's works have been evaluated based on following criteria:

Description: to evaluate whether students are able to describe the work what they did.
Analysis - evaluates the analytical learning of a student on the topic "light and color relationship "using the prototype.
Content - is to evaluate the understandings of the student on the topic.
Creativity- Way of thinking and the originality of his /her presentation & initiative to make the dummy rooms evaluated with this criterion.
Time management, teamwork, Use of materials for the model, is the other sub-criteria.
The assignments are keenly evaluated by the author with the support of three design faculties to get an objective result.

4. Results

In the following subsections, results are reviewed and discussed.Student participants consist of 39 students of first year B.Arch. they are divided into 3 equal groups so that each group contains 13 students. All the students were able to present all the required tasks with a varying degree of competency. The faculty evaluated whether the students could tackle any color related problems or fail to do such task. We were more interested in how the students were able to solve color related problems and if they had mastered the ability to select and suggest color in the design.
Each student was assessed individually and then assigned an application problem of color to provide a final grade. They show a self-assured reason for their works on color.

Figure 5. Student's individual presentation.

5. Students Perceptions

- Same color looks dissimilar in altered light.

- Selection of color should always do according to the light and ambiance of the room/design which should vigorous with the purpose of design also.

Figure 6

Figure 6. shows the effect of (a)Warm Color in Warm light, (b) Warm Color in Cool light and (c) Warm Color in neutral light respectively.
Figure 6(a). The color change in red room illuminated with warm light.
Figure 6(b). The color change in red room illuminated with cool light.
Figure 6(c). The color change in red room illuminated with neutral light

Figure 7

Figure 7. shows the effect of (a)Cool Color in neutral light, (b)Cool Color in Warm light and (c)Cool Color in cool light respectively.
Figure 7(a). The color change in green room illuminated with neutral light.
Figure 7(b). The color change in green room illuminated with warm light.
Figure 7(c). The color change in green room illuminated with cool light.

Figure 8

Figure 8. shows the effect of (a)Neutral Color in Warm light, (b) Neutral Color in neutral light and (c) Neutral Color in cool light respectively.

Figure 8(a). The color change in gray room illuminated with warm light.

Figure 8(b). The color change in gray room illuminated with neutral light.

Figure 8(c). The color change in gray room illuminated with cool light

Figure 9

Figure 9. shows the effect of (a)Neutral Color in Neutral light, (b)Warm Color in warm light and (c) Cool Color in cool light respectively.

Figure 9(a). The color change in gray room illuminated with neutral light.

Figure 9(b). The color change in red room illuminated with warm light.

Figure 9(c). The color change in green room illuminated with cool light.

As true color could be seen and selected in neutral light, **it is suggestible for** commercial, retail, art studios. For all elements of design, it is important to have some balance and contrast.

By experience learn the difference between painting and coloring.

Keeping gestalt philosophy of design by coloring we are looking the totality of a design, for instance, while we enjoy a painting or physical look of a product we are looking the totality of the visual and not how each part is painted, so designer should know how to logically use the color and light on a design.

6. Conclusions

It can be seen then that differences do exist between experienced students and inexperienced. This can be seen in the way of application of a learned concept in a real-life scenario. Design teaching methods are Student-focused than in most other areas of higher education, which provide students the opportunity to explore their own creative ideas only if the students experience the concept of the subject matter and lifts the students to reach wisdom level said in the DIKW model. Experimental, problem-based and experience-based teaching approach should be fully implemented in teaching-learning process to enhance self-directed design learning. Here we facilitate the learning process rather than to provide knowledge. At the same time, students identify what they need to learn in order to solve a problem.

Real size model could be implemented for more accurate reference of color and light, the interrelation between each element and principles of design could be experimentally proved while teaching basic design studio sections, the medium of instruction or teaching methodology for new generation could be a novel , so there are possibilities of research on such an area.
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