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How Visuals Affects the e-Learning Environment

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Abstract: Visuals create major impact in the existing world. Our complex thoughts are easily understood with the support of visuals. The visuals are smartly used by the industry including education, research and training in the form of electronic media. Students of art, architecture and media were chosen for the study on visuals and how it is blending with the e- Learning environment. Various types of visuals are grouped in two kinds as static visuals and dynamic visuals. Questions were prepared from the respective field. Survey method is applied to evaluate the awareness and effectiveness of visuals in e-Learning Content. The study proves that the effective learning happens through the appropriate visuals in the electronic format reaches the end user more directly and quickly. The power of visuals is enhanced among the students with the support of new technology.

Keywords: Visuals, e-Learning, effectiveness, design.

I. INTRODUCTION

e-Learning development activities are marching towards the challenges in the society and to solve the problems of learning in education. In the IT field, multimedia packages are produced in specific to the educational field in the form of electronic form with more visuals. A picture is equivalent to thousand words - referred to show the value of visuals [1]. Most of us are visual learners and many of the learners are falling under multi-model and multi-sensory type. The visual mediums have high potential as long as the information of a picture is well designed [2]. Visuals, first attracts the user and motivates to concentrate on the content to understand better. Visuals influence learners on a cognitive aspect and stimulate to imagine, by which the information processed much faster. Words and visuals are closely coupled with proper colours complement each other for better learning. Visuals are useful to visualise the meaning out of the content to certain extent to remember and it can boost the meta-cognition [3]. Static visuals and dynamic visuals are the two major components of visuals. The e-Learning content on fundamentals of art studio and basic design are the main content for this study and it was chosen from the MHRD project. The duration of each topic is 40 minutes which comprises of various sub topics. The students from first year and second year of art, architecture, and media were showed with the samples of content on art and design. The goals are to analyse the nature of visuals handled and to compare the different types of visuals in supporting the content. It is to study the effectiveness of visuals in conveying the message of content,

II. REVIEW OF LITERATURE

A sequence of visual forms allied with others and create a intellect of meaning to realise and transform to others[4].One should able to capture the essence of creator's intention and ideas used to convey the message [5]. Visual thinking, visual learning, visual communications are the major components of visual literacy. Knowledge on visual grammer which involves line, shape, colour, light, shade and movement are required. Visuals mean that things seen or sensed by the eye sight from the existing world. Image captured in the mind from the nature through the eye. Good visual design compels the learner to learn more. Mostly art and design travels together. The creativity and aesthetics involved in visual content will boost the attention among the learners [6]. Creative graphic representations and simulations are extremely popular and called as communication tools [7]. Many companies insist on graphic literacy as part of their professions so it can be directly associated to the levels of motivation, understanding and retention of the content user [8]. Visualisation is classified as information visualisation and knowledge visualisation [9].Visual representations should be simple, editable, and meaningful and sharable [10]. Designer should practice within the 'disciplined freedom'. Come out from the rules after knowing the rules with dignity. are six models identified very usefull for the effective visual communication. [11]. The technological terms like communication design, info graphics, VFX (visual effects) came in to design field to meet the complexity of the existence. The Power of Visuals in e-Learning article says that visuals create remarkable impact on the environment of the existing visual society [12]. The main factor of a visual representation is simplicity of an picture so less is more will work to attain greater impacts [13]. The animations are more helpful to solve the complexity of the content in to simple segments further to add focus on the content to learn [14].The order of content and visuals will help in eye movement to improve concentration for the follow up. A simplified infographic design is so brilliant where it leaves the impression to a greater level to the learner and user.

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III. METHODOLOGY

To evaluate the awareness and effectiveness of visuals in e-Learning Content on art and design has been analysed in this study. A focus group discussion, content analysis and survey analysis was conducted with the students who are studying Bachelor of Architecture, Bachelor of Fine Arts and Master of Science in Electronic Media. Necessary e-Learning content were prepared with visuals types of visuals on the subject of art and design. As the respondents are chosen from various places, the experimental survey method is applied. The survey was conducted with 475 students (samples) from the 8 colleges of first and second year. On scrutinising, 415 samples answered the questionnaire and the remaining 60 samples are not eligible. The objective of the study was to assess how the visuals affect the learning. The questioner comprised of three parts such as demographic information, Awareness on e-Learning Content and Effects and Uses of various types of Visuals in e-Learning Content with six sub topics. Five point scale is assigned in order to find the reliability of the questions. The statistical test like Chi-Square test, ANOVA and T-test where used to confine the proportion of variance. Other test like Multi Regression, Cross Tabulation, Friedman Test, and Correlation Test also used to analyse the data. By conversion, a level of 0.05 was established for determining the statistical significance.

IV. DISCUSSION AND RESULT

The various types of visuals are analysed in detail and given bellow and indicated as figures and tables to arrive the results. This survey comprised of three parts such as demographic information, Awareness on e-Learning Content and Effects and Uses of various types of Visuals in e-Learning Content with six sub topics. Five point scale is assigned in order to find the reliability of the questions. The statistical test like Chi-Square test, ANOVA and T-test where used to confine the proportion of variance. Other test like Multi Regression, Cross Tabulation, Friedman Test, and Correlation Test also used to analyse the data. By conversion, level 0.05 was established for determining the statistical significance.

Part - 1 - Demographic profile of the sample:

In the figure 1explains about the age, gender, type of institution and branch were explained in detail.

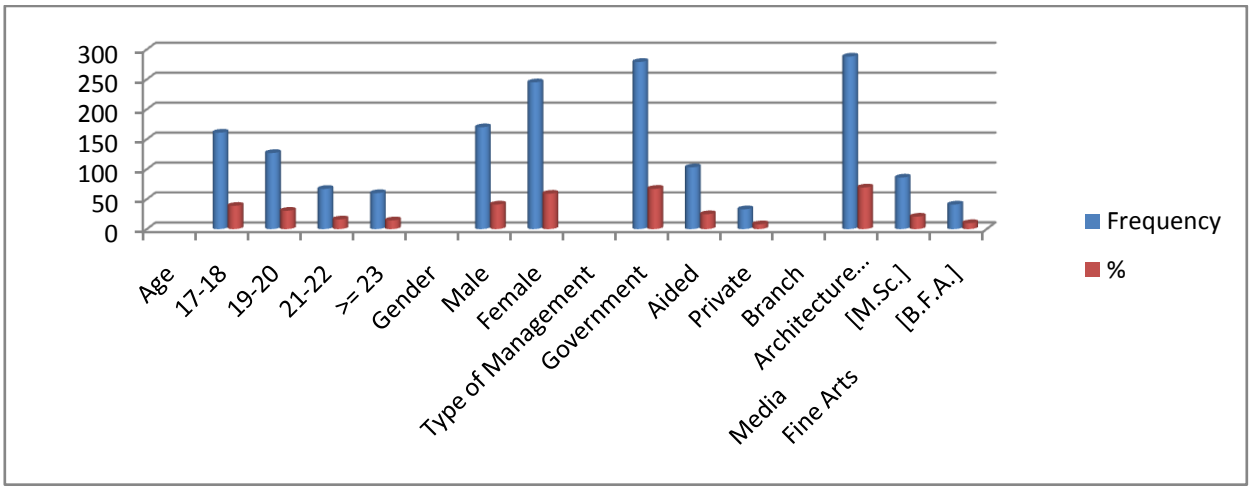

Figure: 1

Part - 2 - Analysis on the Awareness of e-Learning: Mean and SD of Awareness on e–Learning

In the figure 2 explains about the Analysis on the Awareness of e-Learning in detail.

Awareness on e–Learning	Mean	S D
e-Learning is encouraged by teachers	3.94	0.77
e-Learning creates interest to explore the learning	4.25	0.72
e-Learning is used for updating knowledge and it is user friendly	4.27	0.61
e-Learning is accessible at any time and any place	4.00	1.02
Easy to remember the e-Learning content	3.93	0.91
e-Learning is expensive than other learning	3.12	1.21
Visual learning is better than the face-to-face class	3.79	1.16
Visuals in stories are adding interest and improve learning	4.31	0.73
Solve the problems in a better way compared to classroom assignments	3.73	1.00
Like the idea of learning with 3D graphics and animation using a computer than sitting in a classroom with a teacher and booK	4.18	0.91

Figure: 2

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Part - 3 - Effects of Various Types of Visuals in e-Learning Content:

i] Mean and SD of Effects on Black – white and Colour

In the figure 3 explains about the Mean and SD of Effects on Black – white and Colour Learning in detail.

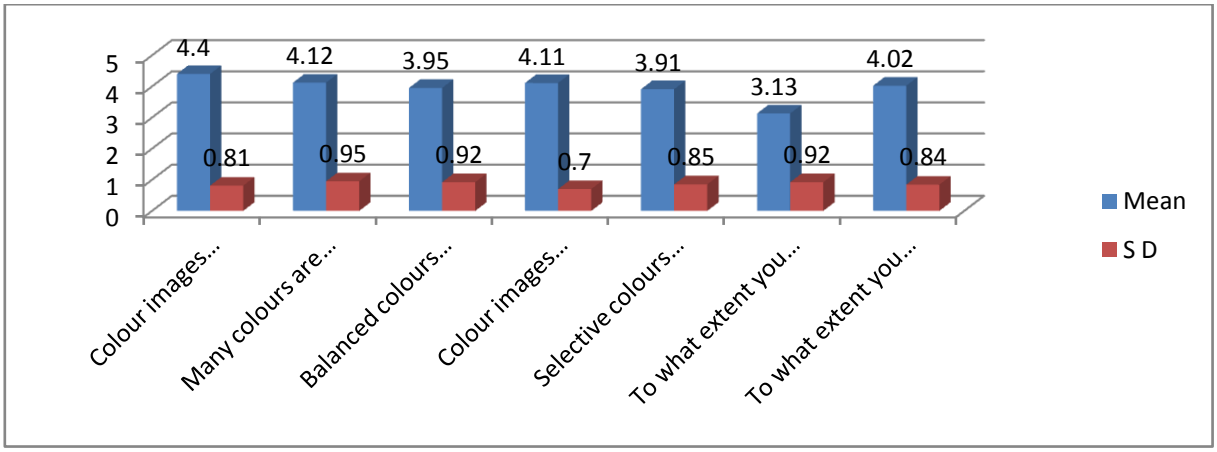

Figure: 3

ii] Mean and SD of Effects of Drawings and Illustrations

In the figure 4 explains about the Mean and SD of Effects of Drawings and Illustrations in detail.

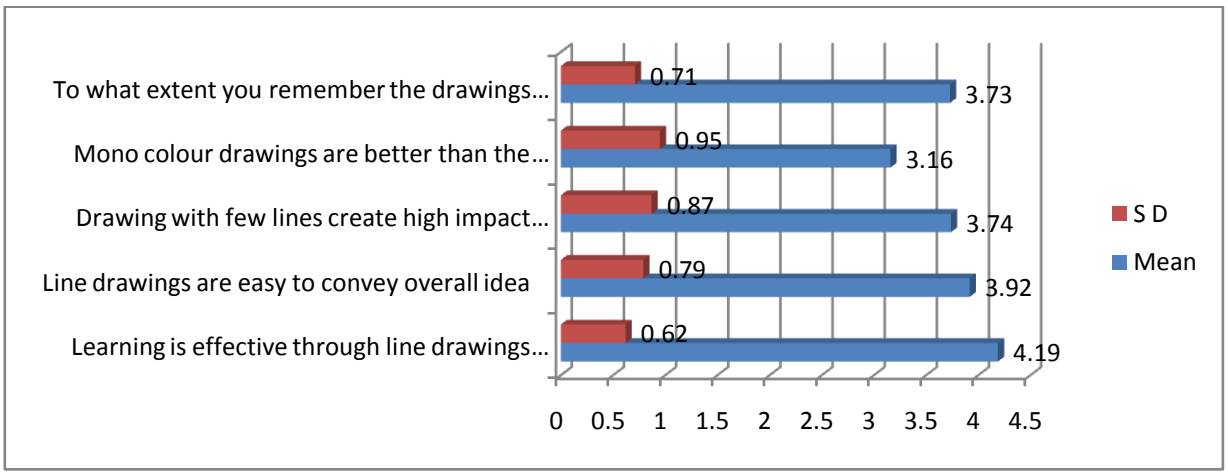

Figure: 4

iii] Mean and SD of Effects of Real images and Photographs

In the figure 5 explains about the Mean and SD of Effects of Real images and Photographs in detail.

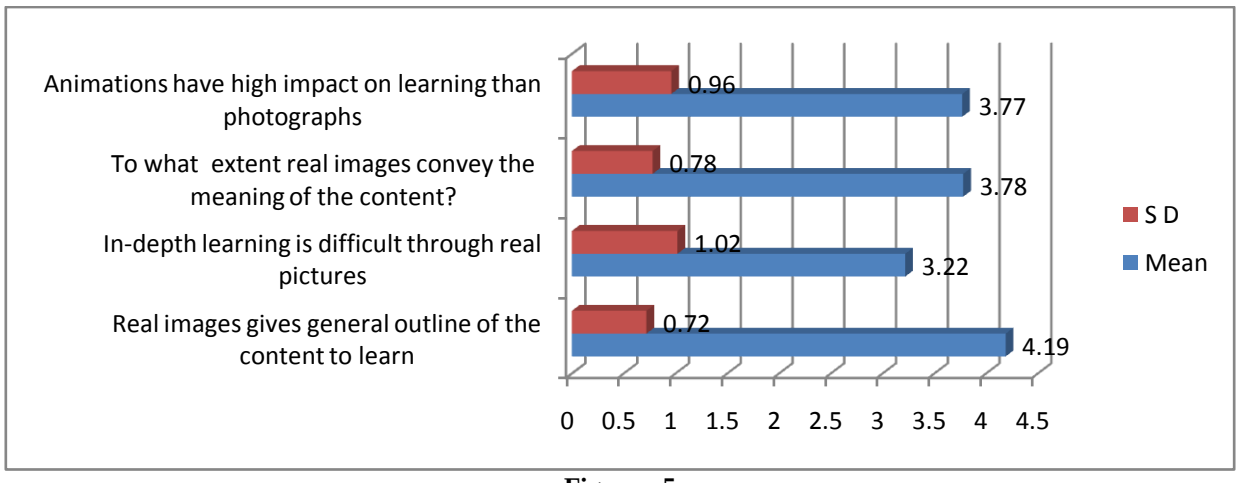

Figure: 5

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iv] Mean and of SD Effects of 2D Graphics

In the figure 6 explains about the Mean and of SD Effects of 2D Graphics in detail.

Effects of 2D Graphics	Mean	S D
2D graphics has details in supporting the learning content	3.92	0.70
Simplified forms of 2D graphics are an added advantage	3.81	0.71
When I see 2D graphics, I usually turn it into 3D images in my mind	3.76	0.98
Effectiveness of 2D graphics in supporting the content	3.47	0.74
Balanced colours in 2D graphics made the content to learn easier	3.54	0.76

Figure – 6

v] Mean and SD of Effects of 3D Graphics and Animation

In the figure 7 explains about the Mean and SD of Effects of 3D Graphics and Animation in detail.

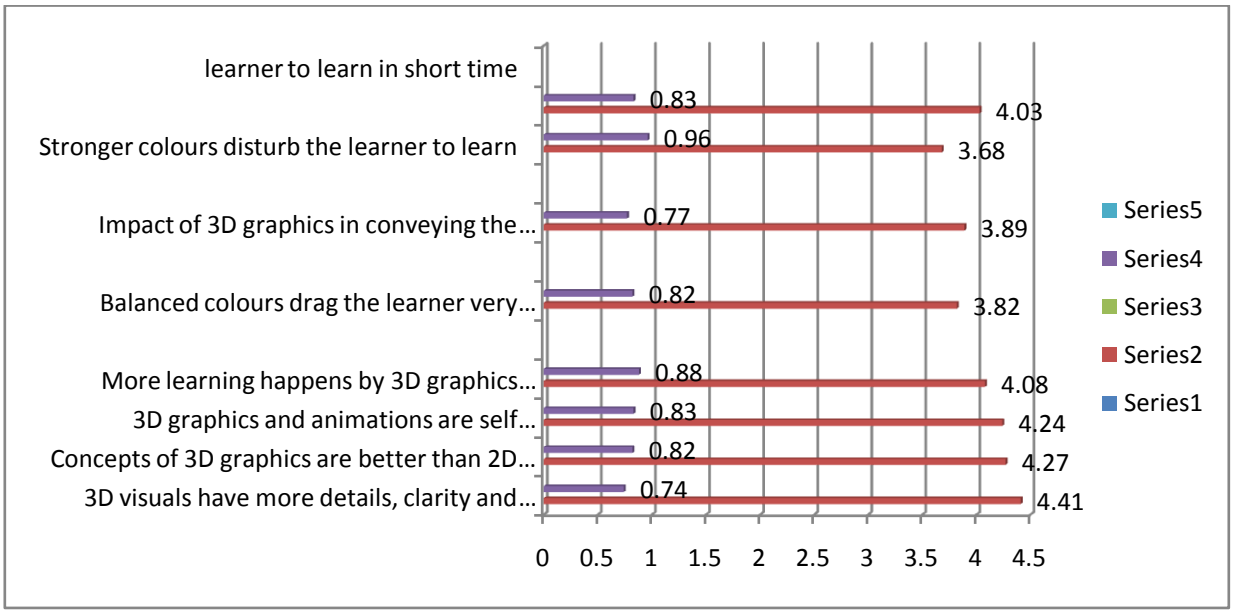

Figure: 7

vi] Mean and SD of Effects of Video

In the figure 8 explains about the Mean and SD of Effects of Video in detail.

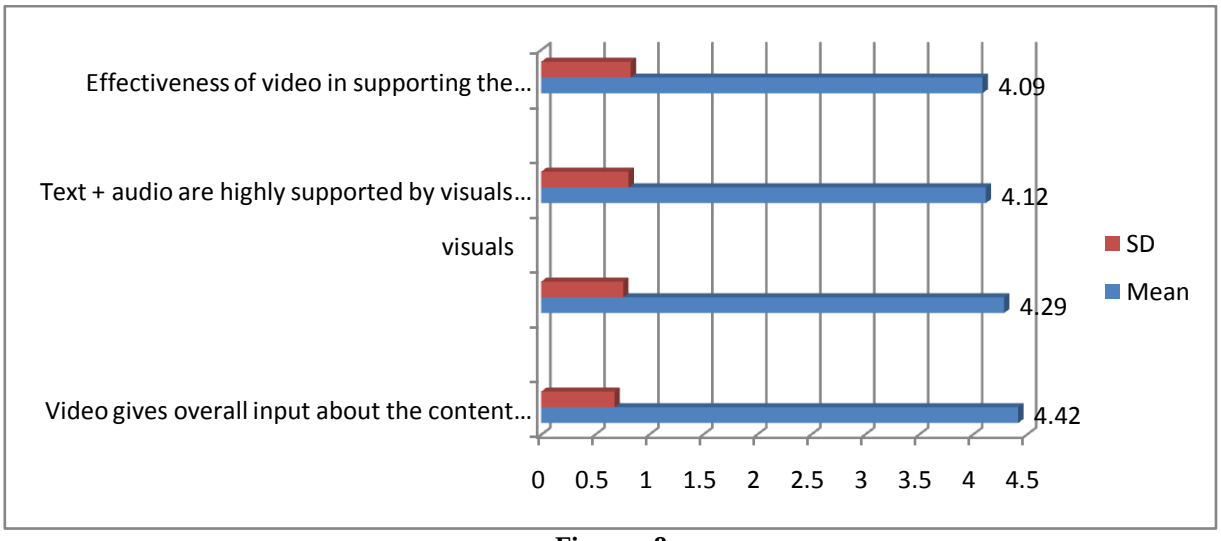

Figure: 8

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vii] The relationship between the Types of visuals and Awareness on e-learning content

When the various types of visuals in e-Learning content were analysed through the Pearson correlation coefficient, found that all the visuals had a uphill positive linear relationship while the strong uphill positive linear relationship was exhibited between black / white and colour visuals and the real images, photographic visuals, 3D graphics and animation and video. Similarly, the strong uphill positive linear relationship is exhibited between visuals on drawings / illustrations and 2D graphic visuals, 3D graphic animation, video and the real images, photographic visuals and 3D graphic animation. The moderate positive linear relationship was exhibited between black / white and colour visuals and the visuals on drawings / illustrations, 2D graphics visuals; between 2D graphics visuals and 3D graphics and animation, video and between 3D graphics and animation and video. The low positive linear relationship was exhibited between visuals on drawings, illustrations and real images, Photograph visuals; between real images, photograph visuals and 2D graphics visuals, video. The Correlation between various types of visuals in e-Learning content is significant at the 0.01 level. When the various types of visuals in e-Learning content were analysed with awareness on e-Learning content through the Pearson correlation coefficient we found that all the visuals had a uphill positive linear relationship and the correlation between various types of visuals in e-Learning content and awareness on e-Learning content is significant at the 0.01 level.

V. CONCLUSION

The useful learning depends on the visuals are evidently seen that the principles of design were employed all over the content as per the cognitive theory of multimedia learning is considered in this research and followed by the principles of Gestalt theory . This method is more useful for the learners to focus on studies, gathering wider information about the subject content, retention of the content in the long-term memory, and to increase in concentration. All together appropriate visuals are conveying the information very much easier among the user to understand better. Effective visuals affect the e-Learning environment and adding strength to the content by focus and effective learning of subject, high retention of memory, scoring higher percentage in the examinations at a greater level with valid points than the regular method.

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