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A study on the role and impact of digital art in healthcare environment and also focus on medical illustration

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Abstract---Numerous clinical experts like to make their own clinical illustrations for use in introductions and distributions with the approach of advanced media, it has become simpler to create great quality illustrations in any event, for those with restricted imaginative abilities including the creator. The development of digital art has set out open doors for both the expert as well as the undeveloped artist. Wandering into digital art creation is conceivable utilizing reasonable digital gear with expansion of a couple of extras. This article portrays the writer's experience with making clinical illustrations utilizing computerized media and examines the advantages of the new innovation. A couple of helpful hints are likewise accommodated clinical experts who might be keen on investigating the choice of making their own illustrations utilizing computerized instruments.

Keywords---digital art, conceivable, digital gear, advanced media, medical illustration.

Introduction

Digital art is a part of digital technology's presentation or creative process. Digital art is used by the mainstream media by many ways like, advertisements, film-makers, to produce visual effect. Digital art itself enhanced in huge umbrella which is term as new media art. After some underlying resistance, the effect of digital innovation has changed exercises like artwork, writing, drawing, model and music/sound art, while new structures, like net art, digital establishment art,

and augmented reality, have become perceived artistic practices. More for the most part the term digital artist is utilized to depict an artist who utilizes digital advancements in the development of art. From an extended perspective, "digital art" is contemporary art that utilizes the strategies for large scale manufacturing or digital media. Digital art can be simply PC produced (like fractals and algorithmic art) or taken from different sources, for example, a filtered photo or a picture drawn utilizing vector designs programming utilizing a mouse or illustrations tablet. Though actually the term might be applied to art done utilizing different media or cycles and just examined in (from scanography), it is generally held for art that has been non-inconsequentially changed by a registering interaction, (for example, a PC program, microcontroller or any electronic framework equipped for deciphering a contribution to make a result); digitized text information and crude sound and video accounts are not typically viewed as digital art in themselves, but rather can be part of the bigger venture of PC art and data art. Artworks are viewed as digital painting when made along these lines to non-digital artistic creations yet utilizing programming on a PC stage and digitally yielding the subsequent picture as painted on canvas.

Role of digital art in helthcare environment

Art helps people express experiences that are too difficult to put into words, such as a diagnosis of cancer. Some people with cancer explore the meanings of past, present, and future during art therapy, thereby integrating cancer into their life story and giving it meaning. Case studies are a typical methodology focusing on the use of the arts in meaning making.

- Healthcare has analysis that how digital art can reduce patient and personnel stress and, therefore, promote a healing environment
- Digital light art and sound frequencies can capably alleviate

Arts have been used in various routes in psychological well-being settings. Art treatment is a laid out discipline in mental healthcare, utilized with various client gatherings. Art is likewise utilized as a demonstrative apparatus in conditions like gloom and in the field of substance misuse. These exercises exist inside the growing area of 'arts for wellbeing', an expansive development that incorporates a wide scope of disciplines and practices, from art treatment through to public art and engineering. Since the early 1980s, the commitment of plan, climate and arts to clinical and non-clinical results in wellbeing has been perceived. While research in this field is less evolved than in different regions, for example, art treatment, there is expanding proof that appealing conditions can improve the encounters of healthcare administration clients.

The effect of art, plan and climate in mental medical services rehearses, from art treatment through to public art and engineering. Since the mid 1980s, the commitment of plan, climate and arts to clinical and non-clinical results in wellbeing has been perceived. While research in this field is less evolved than in different regions, for example, art treatment, there is expanding proof that appealing conditions can improve the encounters of medical care administration clients. The socio-economic and strategy settings of various nations have impacted ways to deal with the arts in medical care.

Digital art helps in medical illustration

Illustrations are consistently used in medicine for instructing, correspondence, record keeping, assessment and circulation purposes. Various clinical specialists including the maker like to make their own clinical illustrations for use in presentations and circulations. With the methodology of digital media, it has become less complex to make extraordinary quality illustrations regardless, for those with confined artistic capacities including the maker. This article portrays the author's contribution in making clinical illustrations using digital media and discusses the benefits of the new development. Several important hints are also obliged clinical specialists who may be excited about examining the decision of making their own illustrations using digital devices.

Figure 1- Simple digital illustration using digital pen and computer tablet



Review of digital arts

Reynolds and Prior (2003) Phenomenological, No. of 30 participants, Chronic illness patients, Health and well-being, Art filled occupational voids, distracted thoughts of illness; improvements in flow and spontaneity, expression of grief, positive identity, social networks.

Puig et al., (2006), Randomized controlled trial (creative arts), No. of 39 participants, Breast cancer patients, Psychological variables, Improved well-being by decreasing negative emotions and increasing positive ones

Ross et al., (2006), Pretest–posttest (arts in medicine program), No. of 46 participants, Hemodialysis patients, Medical outcomes, depression, dialysis times, weight gain, laboratory data, Improved medical outcomes, trends toward reduced depression and hemodialysis parameters.

Walsh et al., (2004), Pretest–posttest quasi-experimental, No. of 40 participants, Cancer patients, Stress, anxiety, emotions, Reductions in stress and anxiety; increases in positive emotions.

Nainis et al., (2006), Pretest–posttest, No. of 50 participants, Cancer patients, Pain and psychological variables, Reductions in distress and negative emotions.

Samoray, (2006), Semistructured interviews, No. of 11 participants, Trauma patients, Stress and fatigue, Reductions in stress and symptoms of compassion fatigue; increases in healing, well-being, and sense of purpose.

Reynolds and Lim, (2007), Interviews and art, No. of 12 participants, Cancer patients, Well-being, Improved focus on positive life experiences, self-worth, and social identity

Aswin Appukuttan, (2021) in his study Digital art - a useful tool for medical professionals to create medical illustrations explain that The use of a dedicated illustration software application gives additional options and tools and better results compared to basic image editing software and is worth the extra cost, with many affordable options available.

Research Methodology

The researcher first attempts with digital media involved scanning and digitization of paper drawings. Attempts to draw using a mouse device on a computer lacked dexterity. The earlier digital tablets with pen functionality were limited by the poor processing power and lack of fluency and precision of the pen tools. The availability of powerful computers at lower cost with added touch and pen functionality increased the potential usefulness of these devices. The option of a detachable keyboard or a tablet computer provided ease of drawing and a more natural sketching feel. The researcher has taken help of traditional method (pen/pencil, paper, various colouring media). The author currently uses a tablet computer, a digital pressure sensitive pen (Microsoft Surface®, USA) and an easily affordable dedicated illustration software with adequate tool options and has found these sufficient for routine illustration purposes (Fig. 1). Several other devices and software applications are commercially available with varying costs and features to suite each illustrator's requirements.

Creating of digital illustration

The development of digital art has set out open doors for both the expert as well as the undeveloped artist. Wandering into digital art creation is conceivable utilizing reasonable digital gear with expansion of a couple of frill. The presence of a gauge artistic expertise perhaps beneficial, however not compulsory. Different instruments accessible in the product applications can assist with working on the nature of the work. The creator has viewed the utilization of digital media as speedier than utilizing customary media to deliver great quality outcomes. The capacity to decide the required final goal and the direct digital result design saves time and exertion. Considering these benefits, the creator currently solely depends on digital hand drawings for delineation purposes. Nonetheless, conventional art has its unique spot and believe, and the creator keeps on partaking in the utilization of the pen, brush, paper and paint for routine non-clinical artwork. The creator's insight over the course of the years in making digital outlines is portrayed beneath:

A 'paper sketch' Scanning and editing

This is the easiest strategy to switch a paper representation over completely to digital configuration. Be that as it may, these creations are confined by the nature of the paper drawings which is restricted when artistic expertise is low and expert instruments are not utilized. Mistakes in the underlying drawing could require redrawing on a new piece of paper consequently consuming time. Additionally, rehashed redresses can influence the nature of the final picture. Different picture altering programming applications are accessible which can further develop the examined picture quality.

Conversion of scanned paper images to digital vectors

The creator has in the past utilized vector representation programming to change filtered paper drawings over completely to digital vectors which can then be controlled like an unadulterated digital outline. These applications license smoothening, extending, growing, lessening, changing stroke thickness and deletion of undesirable strokes as well as shading. This is unique in relation to an ordinary checked picture as the lines are changed over completely to digital vectors consequently. Nonetheless, the creator has viewed this procedure as tedious and requires costly programming and significant PC handling power.

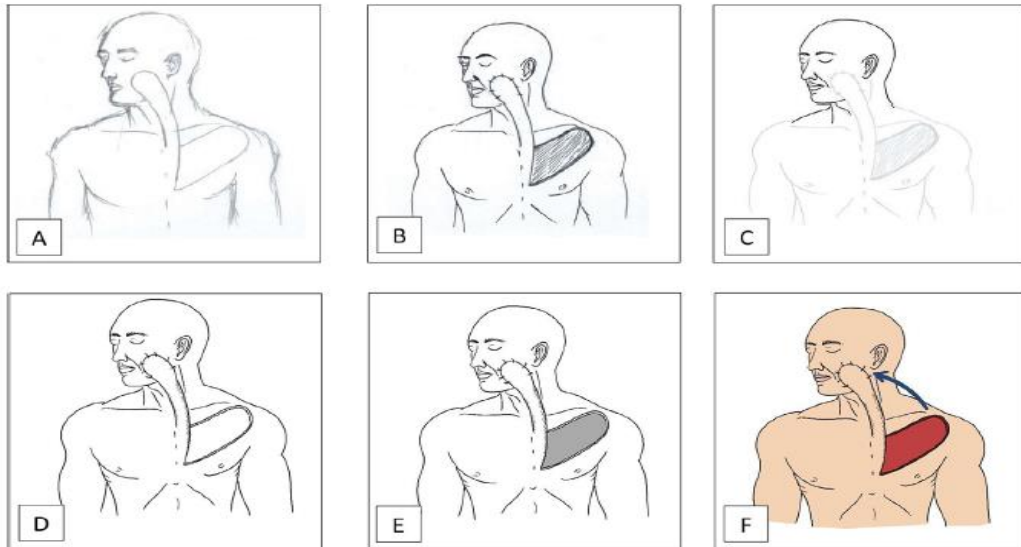
Computer drawings

Different picture altering applications have the choice of making basic drawings with line and shape devices. Furthermore, Computer-Aided Design (CAD) applications are accessible industrially. Nonetheless, from the creator's insight, utilization of CAD is tedious and difficult without preparing. The applications are likewise costly to claim and require gadgets with high realistic handling power.

Using a digital pen and tablet (Hand illustrations)

This includes direct drawing onto a screen utilizing a digital pen and a viable PC, typically a tablet PC. This choice hinders the requirement for filtering a paper picture and on second thought straightforwardly makes the picture in digital configuration. The utilization of a digital pen device gives a characteristic drawing feel and phenomenal hand control. A strain touchy pen is helpful to make lines with shifting weight (thickness) and tighten. Different pen and brush devices in the applications can be utilized with the digital pen similarly likewise with the conventional media yet can give more refined results. A determination of pen and brush choices, smooth line and bend devices, uniform tone fills and the capacity to fix and address blunders are insignificant in obtain the ideal outcome. The choice to utilize layers to successively work on the outcomes and to involve format layers as an aide with decreased haziness help work on the final picture. It is helpful to start with a harsh hand drawn digital sketch on a base layer and to involve this as a format to work towards the final sketch. Assuming shading utilizing a brush apparatus, it is smarter to variety on a layer behind the sketch layer. This tries not to cover up the frameworks.

Figure 2- Beginning to final art of hand drawn illustration and digital drawing



(A) Rough paper sketch. (B) Scanned image of paper sketch for use as template. (C) Using the template sketch with reduced opacity. (D) Digital drawing created using digital pen. (E) Finished digital illustration in grey scale. (F) Finished digital illustration in colour.

Conclusion

The author has found digital media to be a very useful tool for creating good quality medical illustrations useful for publications and presentations. Various methods are available ranging from scanning of paper drawings to direct illustration using digital tools. A baseline artistic skill is beneficial, but not essential. The use of available tools and techniques in the software applications can help even the less skilled artist create satisfactory results with less effort and in less time.

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