Various Aspects of Graphic Design in Digital Medias

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Digital design, often called "logic design," is logical. No special math skills are needed, and the behaviour of small logic circuits can be visualized mentally without any special insights into the operation of capacitors, transistors, or other devices that require calculus to model

Drawings

Some of the earliest cave drawings were created using charcoal from burnt sticks mixed with a natural binder such as animal fat, fish glue or the sap from plants, or using natural chalks - white calcium carbonate, red iron oxide or black carboniferous shale. The first 'paint' used by the earliest cave painters was a crude rust-coloured paste made from ground up iron oxide mixed with a binder. Colour was introduced to early three-dimensional works of art by applying coloured pieces of glass, stone, ceramics, marble, terracotta, mother-of-pearl, and enamels. Although mosaic decoration was mainly confined to floors, walls and ceilings, its use extended to sculptures, panels, and other objects. Tesserae - shaped pieces in the form of small cubes -were embedded in plaster, cement, or putty to hold them in place

Perspective

As Designers grow up, observing and interacting with their surroundings, the rules of perspective are learned intuitively, helping the children to understand the world around them. However, those who choose to become graphic designers need to learn how to

translate these three-dimensional rules onto a two-dimensional surface, if convincing results are to be achieved.

Convergence

As parallel lines recede into the distance, they appear to converge at a constant rate.

Foreshortening

Equally spaced objects appear to become closer together, at a constant rate, as the distance from the observer increases.

Diminution

Equal sized objects appear to become smaller, at a constant rate, as the distance from the observer increases. In addition to being aware of these three rules, the designer of three-dimensional scenes must allow for aerial perspective –whereby atmospheric effects cause distant objects to appear fainter than objects close to the viewer.

Colour

pure colour has a saturation value of 100%. Decreasing saturation, while keeping lightness constant, adds grey to the colour, reducing its purity and producing a 'tone' of the colour. **A** continuous tone image - e.g. a colour photograph- is one in which colours and shades flow continuously from one to another. The relationship between tints, shades and tones can be summarised in a colour triangle. Tints offer the designer a range of subtly different variations around a single colour in one pass through an offset press, while two colour printing extends the possible variations to shades and tones. Varying the brightness and saturation of object surfaces within a graphic design also provides a simple means of creating the illusion of depth or distance *Hue*

Digital designers and artists have at their disposal the vastly greatest choice of colours than were available to their traditional counterparts. **As** the earliest digital applications emerged the objective of the developers was to provide tools and techniques which allowed the application of colour in ways that mimicked the traditional pencil or pen,

the only variation possible being the thickness of the stroke. From these early beginnings, the ingenuity of developers - and the healthy competition which exists between them – has extended the range of tools and techniques dramatically the matter of only a few years

Digital Colour in Graphic Design

The *Texturize mode* converts the paint colour to greyscale, then multiplies the greyscale value by the image colour. The *Colour mode* is used to replace the colour of an image with the hue and saturation values of the applied colour, leaving the lightness value unchanged.

The *Hue mode* is used to replace the hue value of an image with the hue value of the applied colour, leaving saturation and lightness values are unchanged.

The *Saturation mode* is used to replace the saturation value of an image with the saturation value of the applied colour. Using this mode, painting with white or black (which have zero saturation) alters the underlying colours to their equivalent greyscale values.

The *Luminance mode* is used to replace the lightness value of an image with the lightness value of the applied colour.

The *Red mode* is used to replace the red channel (using the RCB colour model) of an image with the red value of the applied colour. Only the red channel is affected.

The *Green mode* is used to replace the green channel of the nan image with the green value of the applied colour. Only the green channel is affected. The *Blue model* is used to replace the blue channel of an image with the blue value of the applied colour. Only the blue channel is affected.

 The *inverted mode* is used to reverse the colours of an image. A black-and-white image reverses to look like a photo negative. **A** colour image reverses using additive colours.

Proofing a publication

Digital proofs

This category of proofs includes those generated from inkjet, laser, thermal wax, phase-change, or dye-sublimation printers. Data is imaged directly from the original file onto

paper. This method is quick and economical and is useful to give a first pass representation of how a page will print, but it is not usually accepted by print shops as being a good enough representation of what they are expected to produce, as the proof is not produced from the film which will be used to make the printing plates. In particular, digital proofs cannot reproduce press conditions such as screen frequencies and angles, dot gain, etc.

Off-press proofs

These are made from the film separations which will ultimately be used to make the printing plates. This category includes blueprints, overlay proofs (e.g. Colour Key) and laminate proofs (e.g. Packaging).

Press proofs

Produced using the very plates, inks and paper which will be used for the final print, press proofs provide the most accurate but also the most expensive proofing method. They are generally reserved for high-end projects f

3D modelling

While a skilled designer can produce quite convincing three-dimensional illusions within a drawing application, using a combination of ingenuity and the techniques illustrated. In the previous section, the results were created. To produce scenes that are truly three dimensional, i.e. which, once created, can be freely rotated around Cartesian axes and viewed from any angle, the designer has to move on to applications that are capable of producing genuine three-dimensional representations. Until recently the processing The power needed to handle the complex calculations involved in manipulating 3D objects and scenes, especially when a composition required the rendering of textures, reflections and shadows, was prohibitively expensive and was restricted mainly to high end is limited to the plane in which the drawing has been workstations used for CAD solid modelling work of the software that, even for the CAD professional, the application learning curve was daunting. All of that is happily now changing rapidly, with the advent of faster and cheaper processors and graphic cards

and the trend in the design of applications like daydream Studio (Figure 5.21), Extreme 3D or Meta Tool's Bryce towards user-friendliness, bringing true 3D modelling within the reach of the desktop user. While the desktop drawing application 'metaphor' is already starting to mature, with the growing commonality of commands, tools and features being offered by different vendors, the more complex 3D application metaphor is still at an early stage, as developers test the market with different approaches. Instead of the drawing area and line and shape tools of the drawing application, the 3D application offers 3D 'views' and solid primitives like spheres,

In the digital world. The development of hardware and software needed to create and manipulate objects in three-dimensional space has been driven by the world of commerce. In many industries, for example in the design and manufacture of aircraft or motor cars, the ability to create and refine digital models in three dimensions offer huge savings in money and time over conventional clay modelling techniques- savings which are multiplied when the design software is used to drive numerically controlled machine tools to produce parts and control assembly. Now it is the turn of the digital sculptor to seize the initiative and to adapt the commercial hardware and software for more artistic Earlier, we looked at how drawing and painting applications could be used to create digital explore what other possibilities are opening up for the budding digital sculptor. architecture and terrains. While three-dimensional applications like Ray Dream Studio, Extreme 3D and Bryce offer the greatest opportunities, drawing and painting applications do offer some possibilities

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