

Module 7: "Color Perception"

Lecture 20: "Blind-spot"

The Lecture Contains:

- Application of Color Illusion in Design
- Blind Spot and the "Filling-in" phenomenon
- Instructions
- Application of Color Illusion in Design
- Conclusion

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Application of Color Illusion in Design

Designers have successfully explored and exploited color illusion applied in various designs. Following are some of the examples of design where the illusion is applied to exploit human eye's deficiency in advantage for product design.

Interestingly many of us are not aware of the way our eyes function. 'Blind Spot' is experienced by all of us but not able to understand the scientific reasons. Following are the example that would explain the the 'blind spot' phenomenon.

Blind Spot and the "Filling-in" phenomenon

(Ref. <http://www.personal.kent.edu/~rmuhamma/OpticalIllusion/illusion.html> ; June 5, 2012)

Each of eyes contains an area that has no photoreceptors because it is occupied by the optic nerve. This area is known blind spot. These areas are on opposite sides of visual field. Following exercise is isolating the blind spot.

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Instructions (Plate13):

Close left eye and fix right eye on the cross. Place eyes about 12 inches (30 cm) away from the monitor (distance may vary depending on the screen resolution) and notice the dot disappears.



Plate8 Blind Spot- Exercise A

Note that the dot is replaced, not by a black region, but rather blank white space. This is because the brain simply "fills in" the most probable stimulus (in this case, a uniform white area) where there is none.

The following examples demonstrate the "filling-in" phenomenon in greater detail. Apply the same instructions as given above and notice the red markings each time are replaced by the most probable pattern that your brain is able to perceive.



Plate9 Blind Spot- Exercise B



Plate10 Blind Spot- Exercise C

(Ref. <http://www.personal.kent.edu/~rmuhamma/OpticalIllusion/illusion.html> ; June 5, 2012)

All the above three Blind Spot- Exercises show the deficiency of human eyes that may create various illusionistic images.

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Application of Color Illusion in Design



Plate 11 / iPhone 4 Case



Plate 12 Wall-paper Design

Source: http://www.google.co.in/search?hl=en&pq=color+illusion+in+design&cp=23&gs_id=xr&xhr=t&q=Color+Illusion+Applied+in+Design&bav=on.2.or.r_gc.r_pw.r_qf..cf.osb&biw=1350&bih=555&um=1&ie=UTF8&tbn=isch&source=og&sa=N&tab=wi&ei=sSPOT_XgD4KsrAeataSFDA ; June 5, 2012

iPhone 4 designed the case with the help of illusion which would create its special branding. The vibrating textured surface undoubtedly draws attention compare to other similar products.



Plate 13 A, B & C Illusionistic Color Headphone

The above headphone (Plates 13) product is attempt to grab consumer's attention. The color illusion is typically chosen for the youth. The transparency of each color creates luminous effect and increases color intensity. "With a penchant for the dramatics, customization specialists at ColorWare just introduced its ColorWare Collection Illusion Beats Studios. Featuring the exact same heart pounding output as your regular run-in-the-mill Studios Headphones from Beats by Dr. Dre, though with one obvious difference – the unique iridescent paint scheme. Meticulously applied, the color actually shifts to various degrees right before you. Comes in three ranges – Blue to Red, Red to Gold, and Gold to Silver, each individually engraved and comes with a ColorWare ultra suede carrying case. The chameleon-like Illusion Beats Studios headphones are now available at ColorWare online store for a limited time only."

(Ref. <http://www.freshnessmag.com/2012/04/16/colorware-x-beats-by-dr-dre-illusion-beats-studios-headphones/> ; June 5, 2012)

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Plate14. The American flag colors Americans in debt
ILLUSION OF RECOVERY FEELINGS



Plate15. London Design Week 2011 Preview:
"Cut It Out" by Noma Bar

Plates 14 & 15 are examples of 3D effect by creating depth of field. In plate 14 the reflection on the horizontal surface has created the depth field while the plate 15 the application of primary and secondary colors have created depth of field. Designers purposely choose to apply such hues that would have illusionistic effect in our perception. The above examples justify the phenomenon that explains- 'physiological ones that are the effects on the eyes and brain of excessive stimulation of a specific type (brightness, colour, size, position, tilt, movement)'.



Plate16 A, B & C Illusion of the Broken Chair

(Source: <http://homedecoratinginterior.com/unique-chair-optical-illusion-applied-to-a-chair-by-peter-bristol.html> ; June 5, 2012)

The design of the chair is done to deceive human eyes to create illusion. The above plates show the stages of the design. The drawing of the shows the chair is firmly grounded (plate16 B) on the carpet with the help of nuts and bolts. The missing portion of the legs creates illusion of instability.

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Plate17 A. Illusion of Florian Schmid has created Stitching Concrete,...



Plate17 B. Wall-paper Design to increase space

The furniture design (plate17 A) is made out of such material that does not give impression of rigidity or strength to take weight of a person. It has certainly created an illusion due to the stitching that does not confirm to our experience of strength. Hence, the experience of illusion does not depend on color alone. The example justifies, 'cognitive illusions, the result of unconscious inferences', which remains in human subconscious level.

(Ref. http://www.google.co.in/imgres?q=Color+Illusion+Applied+in+Product+Design&start=40&num=10&um=1&hl=en&biw=1350&bih=555&tbn=isch&tbnid=wX29kCQUyg2T9M:&imgrefurl=https://www.lsglobal.com/seed/2011/08/&docid=Kfe2D3Lj7UD_M&imgurl=https://www.lsglobal.com/asset/43767/351x232/false&w=351&h=232&ei=1EXOT7XNKdGxrAf3_8WbDA&zoom=1&iact=hc&vpx=114&vpy=174&dur=498&hovh=182&hovw=276&tx=199&ty=44&sig=102774829751311164896&page=3&tbnh=168&tbnw=224&ndsp=17&ved=1t:429,r:11,s:40,i:65 ; June 5, 2012)

B. "Keep in mind that larger rooms can take darker colours. If your rooms are on the cozy side and you'd like to give the illusion of them being bigger than they actually are then it's wise to go for a lighter colour." Ref.

<http://thebinarybox.co.uk/blog> ; June 5, 2012



Plate18. A Stone Planter



18 B. Stone Planter



22 C. Andrea Lucatello, The hanging bed

The stone planters (plates 18 A&B) have created unique illusion of naturally grown plants on rock surface. In this case the designer has chosen to apply real material to create the illusion. The cognitive illusions have helped the designer to recreate the subconscious. On the other hand the design of the bed (plate 18C) has done magical illusion of natural open space inside the bedroom.

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Plate19 A & B Illusionistic Table Design

"This concept is embodied in the Illusion range of tables, which are simple and functional. Based on observing an outdoor cafe with draped table cloths, the designers then sought a way of producing the essence of drapery with modern materials. The result is a true representation of Symbolic Functionalism. See www.essey.com for further information." Icon Interior (Ref. <http://tracy-leach.blogspot.in/> June 5, 2012)



Plate20 A. Illusion of Floating Figure



Plate20 B. Wood Cut Print

Nano-Netting – Super strong nano fibers so small they are invisible to the human eye, giving the illusion of being suspended in air... (Ref. <http://www.futuristspeaker.com/2011/03/25/> : June 5, 2012)

The invention of new technology has helped designers to design unique situations and environments. The illusion of 3D (plate20 A) in reality and on 2D (plate 20B) surface both have tried to exploit human eyes.

Conclusion

The human eyes experience many amazing things that does not confirm to reality. There are scientific reasons for such experiences which are known as Visual Illusions. Designers have effectively applied the phenomenon of Visual Illusion in the field of design to maximize its effect on the users. The above examples are a few to illustrate the application of this common physical disorder that have helped us to create very attractive and effective products.