

Intan Nur Firdaus Muhammad Fuad, Sharifah Raudzah S. Mahadi & Nur Hisham Ibrahim (Dr) (2017). Educating Adults Towards Color Blind Diagnostic Among Children Through Poster Awareness Campaign. *Idealogy*, 2(2) : 106-115, 2017

## Educating Adults Towards Color Blind Diagnostic Among Children Through Poster Awareness Campaign

Intan Nur Firdaus Muhammad Fuad, Sharifah Raudzah S. Mahadi & Nur Hisham Ibrahim (Dr)  
Fakulti Seni Lukis & Seni Reka  
Universiti Teknologi MARA  
32610, Seri Iskandar Campus Perak, Malaysia

[Intan730@perak.uitm.edu.my](mailto:Intan730@perak.uitm.edu.my)

### Abstract.

To identify whether a person has a color blind deficiency a test commonly used for this detection is Ishihara test, where the dots of the various colors are combined to form an object, letters or numbers. These tests are normally found in hospitals or institutions where patients undergo the test. Assimilation of skills needed to interpret the objects, letters or numbers are required to specify whether the person has a color vision problem.<sup>1</sup> The development of children's language can be seen in terms of the ability to receive, understand and produce. Children as early as one year often possess limited skills in interpreting objects but are difficult to interpret letters and numbers. Among the objects that can be interpreted by children are commonly surrounded by their environment and that repeat for the child to remember. It is known as cognitive (mental activity) of Jean Piaget's theory.<sup>2</sup> (The process of increasing capability of thought, knowledge and intellectual. The ability to form and generate a lot of common sense to solve problems, understand and analyze.) Ishihara Test specifically builds for adults who are not illiterate. Been aware on that issues Dr. Terrace L. Wagoner test the process by making it easier to generate the image of the objects around that is easily been recognize by children. For example like ball, apple, star and etc., in the form of dots of color. Dr. Terrace test also has been approved by a number of ophthalmologists. These test however, only suitable for children aged 3 years and above.<sup>3</sup> In Malaysia colorblind issue among kids are not commonly been discussed. Rarely do we see Malaysian society, especially parents concerned about this issue. Mostly color blindness is only detected when they are starting out to express their opinions and their feelings. Parents and educators that are not been educating by this inability, will make their children face this disabilities to deal with it themselves.

---

<sup>1</sup> from <http://www.colormatters.com/color-and-vision/what-is-color-blindness>

<sup>2</sup> <https://www.learning-theories.com/piagets-stage-theory-of-cognitive-development.html>

<sup>3</sup> <http://colorvisiontesting.com/color5.htm>

## INTRODUCTION

Color reversal effect of light on an object that can be detected through visual or sensory impaired. Without light we cannot see color. Thus color and light are the two things connected closely that make human can detect color. But the problem of color blindness is a disorder caused by the inability of cone cells of the eye to catch a certain color spectrum caused by genetic factors.

Color blindness is often misunderstood. Many people judge, color blindness has vision like a black and white television. Actually, people who are actually visionary color problem are not totally colorblind. It just has different perceptions of color only with people who have normal vision.<sup>4</sup>

Color blindness is usually congenital. This means that this problem has existed on the child since birth due to genetic disposition. Color blindness is a genetic disorder descendant; this disorder is often called sex linked. Retinal cells comprising stem cells that are sensitive to black and white, and cone cells that are sensitive to other colors. Color blindness occurs when light receptors in the retina nerve changes, especially to cone cells that become a main cause to color blindness. Each of them does not have the same problem. They can be classified into 3 types: Trichromacy (commonly have difficulty distinguish between red-green, brown), Dichromacy (will confuse some blue with some purple and often confuse to the pale of all shade color), while Monochromacy (can see no color at all. Their world consists of different shades of grey, from black to white)<sup>5</sup>

## PROBLEM STATEMENT

Problems are usually congenital to color blindness. This means that this problem has existed on the child since birth due to genetic disposition. There are times when it takes place only after the children has suffered from a disease. The problem of color blindness is difficult to detect without a color test. This is even acknowledged by DR. ABDUL HALIZA MUTALIB, Optometrists and Head department of Optometry, Faculty of Allied Health Sciences, Universiti Kebangsaan Malaysia, state that many parents are not able to recognize these problems in children in their early stage. People with color blindness cannot identify certain colors on certain objects, especially green-red, red-green, blue-yellow like a normal human vision. This issues and research has a potential to been develop in future due to infrequently been discussed in Malaysia. We're all familiar with the classic paintings of Van Gogh, where the diversity of colors used to produce impressionist paintings and drawings after his death and was appointed by the art world. According to some study, his artwork has been diagnosis; where he produced many uses colors that can only be seen by people with color blindness. Is Van Gogh one colorblind artist? There is still no detailed study carried out other than Kazunori Asada Japanese scientists study, he mention in his essay, Van Gogh has a rather strange way in using color. Although the use of rich color, stripes of different colors run concurrently, or a different

---

<sup>4</sup> [Hrrp://www.colour blind-see-colour- like sound.com](http://www.colourblind-see-colour-like-sound.com)

<sup>5</sup> <http://www.colourblindawareness.org/colour-blindness/types-of-colour-blindness/>

color dot suddenly appeared. Asada had guessed that van Gogh had color vision deficiency<sup>6</sup>.

This Problems and issues raised to this theme for the poster campaign. Purposely to train the public perception that color blindness should not be regarded as a disease but only a permanent inability, this inability available since birth makes them were in able to interpret color since baby, who grew up to be a child that is not able to find out whether they are suffering from this inability. The adults who are close to them should identify it. It should involve parents and teachers. They should not overlook the issue and must understand the problem.

Clinical trials of color blindness testing tool known as the Ishihara test, a test to determine whether a person has a color vision problem or not, where spots of color diversity are combined to form an object, letters or numbers. These tests are usually only available at certain hospitals or institutions that require a person to undergo the test. Understanding and skills needed to interpret objects, letters or numbers are required to specify whether the person has a color vision problem. To test children visibility this test are inappropriate to them due to the factor of understanding the skill to interpret the letters and numbers. Generally at the age of 2, child will begin to recognize colors. For those who have color blind, it can be detected with the selection of the color chosen by the children at their own activities, such as coloring or drawing activities. These activities whether ranked scribbling stage or pre-schematic stage are a good way to diagnose the problem since children's drawings are often the visual representation by them.<sup>7</sup> Parents and teachers should be concerned to know so that they can help and support the children inability to help them face it and be aware of some situation that can bring, cause difficulty or harm them in their everyday life. Difficulty in education are importantly to be concern because most of the teaching materials need color commonly in the syllabus or subject content. Difficulty in getting healthy due to willingness to appetite may be affected by the loss of the attraction of colors from foods causing it to become less appetizing and cause the children loss of appetite.<sup>8</sup> These include determining the color of traffic lights that can harm them. Color Blind people find it hard to determine the color of the lights. As a result it can be dangerous to people with color blindness and it will be consequences to road traffic accident.<sup>9</sup> There are also conducted studies that say people with color vision deficiency are more likely to have mental health problems.<sup>10</sup>

These awareness Poster campaign targeted parents and educators of children potentially suffering from color blindness. The campaign educate them on how people with color blindness see or interpret this color. Most parents and teachers do not know that they child or children may be one to this permanent disability. The poster campaign series, HOW I SEE COLOR based on the colors perceived by people with color blindness through an Internet search.

---

<sup>6</sup> <http://asada0.tumblr.com/post/11517603099/the-day-i-saw-van-goghs-genius-in-a-new-light>

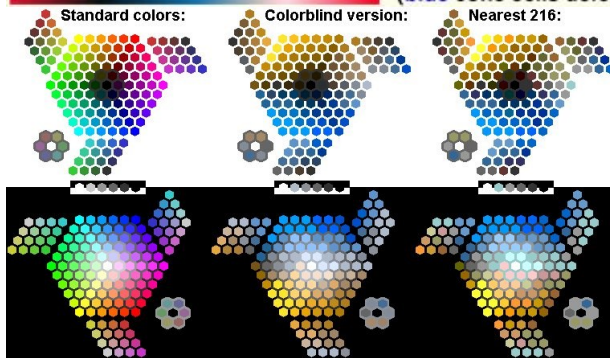
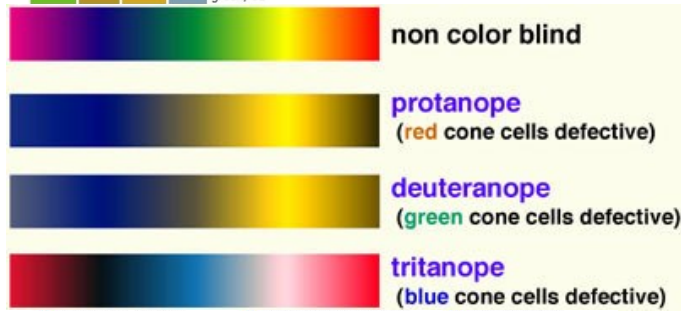
<sup>7</sup> <http://www.healthofchildren.com/D/Drawings.html>

<sup>8</sup> [https://nei.nih.gov/health/color\\_blindness/facts\\_about](https://nei.nih.gov/health/color_blindness/facts_about)

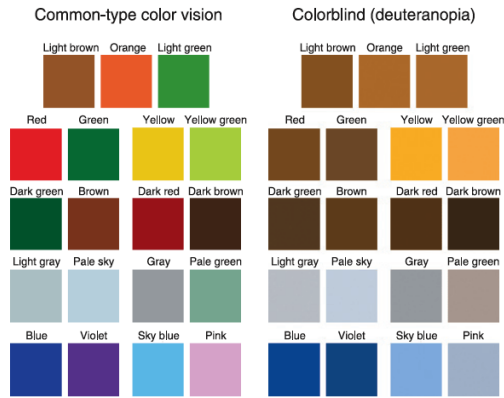
<sup>9</sup> <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4170403/>

<sup>10</sup> Color Blindness Linkage to Bipolar Manic-Depressive Illness New Evidence

Original color	Seen by a...			HUE	COLOR CODE
	Protan	Deutan	Tritan		
				Black, 0°	#000000; RVB 0,0,0 CMJN % 0,0,0,100.
				Orange, 41°	#E69F00; RVB 230,159,0 CMJN % 15,41,93,1.
				Sky blue, 202°	#56B4E9; RVB 86,180,233 CMJN % 66,16,4,0.
				Bluish green, 160°	#2B9F78; RVB 43,159,120 CMJN % 81,15,62,2.
				Yellow, 56°	#F0E442; RVB 240,228,66 CMJN % 15,6,79,0.
				Blue, 202°	#0072B2; RVB 0,114,178 CMJN % 90,49,12,1.
				Vermillion, 27°	#D55E00; RVB 213,94,0 CMJN % 17,71,96,5.
				Reddish purple, 336°	#CC79A7; RVB 204,121,167 CMJN % 26,62,12,0.
<b>How color vision deficient people may see our corporate colors:</b>					
				Orange A, 36°	#D88100; RVB 216,129,0 CMJN % 18,54,95,3.
				Yellowish green, 92°	#6DC023; RVB 109,192,35 CMJN % 81,15,62,2.



	Normal Vision	L-cone defect	M-cone defect	S-cone defect
<b>Men</b>	<b>91.4%</b>	<b>2.45%</b>	<b>6.1%</b>	<b>0.011%</b>
<b>Women</b>	<b>99.6%</b>	<b>0.04%</b>	<b>0.36%</b>	<b>0.04%</b>
<b>Overall</b>	<b>95.5%</b>	<b>1.25%</b>	<b>3.24%</b>	<b>0.025%</b>



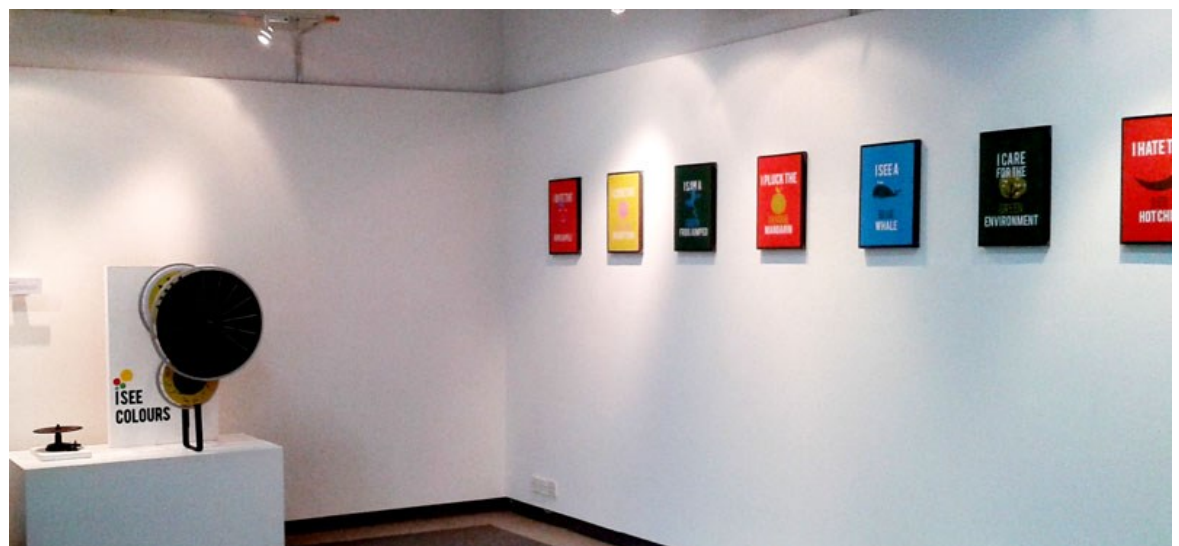
Picture 1: Images from the internet sources (The colors most likely been seen by the color blind person)





Picture 2: Poster campaign series (How I see Color)

The object that colored in every each poster such as whale, frog, sun, apple, chili, orange and tree are a color perceived by people with color blindness, whereas for the normal vision or the original color is the color that is on the background in each respective posters. *I see a blue whale, I saw a green frog jumped, I love the yellow bright sun, I bite the red ripe apple, I hate the red hot chili, I pluck the orange mandarin, I care for the green environment*, where a sentence on each poster correlated respective by the colors such as blue, green, yellow, red, orange, green. The background color for each poster was randomly selected to portray people with color blindness is a diverse background of life, or interest in their daily lives. How do they see different colors than the normal vision? For example, in the posters I see a blue whale, the original color should be seen by normal sight, which supposedly the blue whale is in the blue color of the background colors that use in this poster. People with color blindness see normal vision blue to bluish-green color. The words BLUE in teal color is to reflect the color seen by people with color blindness is. If the poster is seen by the audience, the audience will start to figure out why I colored the whale with Teal color while the sentences printed on posters that say See a BLUE (blue) whale.



Picture3: Color blind Posters (How I See Color)

## CONCLUSION

All parents want the best for their children. A good development for the child is to make the preservation of their lives. For children who are suffering from the inability of the color blindness do not know that they have the inability. The parents and educators should play an important role to give them support to accept the inability of this by understanding their needs and wants to a trouble-free in conducting their normal life, helping to teach them to accept this inability well and know how to deal with it. The sensitivity of parents and educators is needed to identify this inability in the early stage so that the child does not grow up to be children, teenagers and adults who do hide their problems and face confident issues. Being aware of your children development what they do and learn can help you to know where there are in the right path. By monitoring their progress of development milestone, the adult can promote health and monitoring their need and recognize immediate evaluation. The sooner the child can be identified, the sooner they can receive proper intervention to improve the situation. It is hope that, this awareness campaign can open the eyes of the community, especially those targeted for them to concern and cope with the realities.



## BIBLIOGRAFI

What is Color-Blindness (September , 2012),

from <http://www.colormatters.com/color-and-vision/what-is-color-blindness>

ColourBlind (Januari, 2013)

from <http://www.colourblindawareness.org/colour-blindness/>

Color Blind see colour (october, 2013),

Hrrp://www.colour blind-see-colour- like sound.com

Type of color blind (September, 2012),

<http://www.colourblindawareness.org/colour-blindness/types-of-colour-blindness/>

How kids see color (September,2012),

<http://colorvisiontesting.com/color5.htm>

Does Van Gogh Colour Blind (September,2013)

<http://asada0.tumblr.com/post/11517603099/the-day-i-saw-van-goghs-genius-in-a-new-light>

“Drawing”2017 Encyclopedia of Children Health June 5,2017

“Facts About Color Blindness”,2015 National Eyes Institute (NEI) June 5, 2017

Color Blindness Linkage to Bipolar Manic-Depressive IllnessNew Evidence

J. Mendlewicz, MD; P. Linkowski, MD; J. J. Guroff; et al

Malchiodi, Cathy. *Understanding Children's Drawings*. New York: Guilford Press, 1998

Rubin, Judith. *Art Therapy*. New York: Brunner/Mazel, 1999

Stage Theory of Cognitive Development (Piaget) - Learning Theories (May ,2017)

<https://www.learning-theories.com/piagets-stage-theory-of-cognitive-development.html>

Fay, Aaron, and Frederick A. Jokobiec. "Diseases of the Visual System." In *Cecil Textbook of Medicine* , 22nd ed. Edited by Lee Goldman, et al. Philadelphia: Saunders, 2003, pp. 2406–19.

Olitsky, Scott, and Leonard B. Nelson. "Disorders of Vision." In *Nelson Textbook of Pediatrics* , 17th ed. Edited by Richard E. Behrman, et al. Philadelphia: Saunders, 2003, pp. 2087–9.

AM Haliza, MMS Md Muziman Syah, and MF Norliza “Visual Problems of New Malaysian Drivers” in *Malaysian Fam Physician* 2010; 5(2): 95–98.Published online 2010 Aug 31

