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Scrutiny on colour psychology by utilising colour wheel to determine its effect on gen Z for website design

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Abstract---A good website can have a significant impact on the e-commerce business. As a result, variables that improve an e-commerce website must be considered. The colour of a website is a crucial factor that has a direct impact on influencing people minds. Many studies have been conducted to better understand how colour is used in various fields to reap the benefits. In this study, the major purpose is to explore key colours and their impact on the website design to identify how colour affects generation z in an e-commerce website. Primary and secondary colours are examined in the analysis. A questionnaire will be created, and an online survey of Generation Z will be conducted. The collected data may be analysed to determine the most affecting colours for website design among generation Z, as well as the likability of various colours among generation Z. This knowledge will aid in making better colour choices for Generation Z in terms of website design and marketing.

Keywords---colour psychology, generation Z, e-commerce, website design.

Introduction

Colours have their psychological effects. According to marketing research, colour theory is used to represent brand values and products. Colour has its wavelength that influences the mood, behaviour, and attitude of a different generation. People have varied emotional responses to different colours. It has been used by marketing designers and corporations to catch people's attention for decades, each colour has its personality and effect. Colour may undeniably aid in drawing

customers' attention since we humans are wired to recognise bright objects and, on a general level, colour attracts more attention than monochrome. The reason for this is that our brain's pre-attentive system was intended and developed to register colour from the environment quickly, and it also has the immediate role of choosing objects for future attentional processing. Colour is important for influencing customer's perceptions of companies and products, in addition to gaining attention. Colours communicate a wide range of ideas and feelings. Using correct colours on the website triggers positive emotions in the customers. In this study, we are taking generation z as a focus group to understand their perception about colour used in website design and analysis the likability of colour in website background. Gen z are considered a focus group because they are being digital natives uses online shopping for their day to day life and they are future spending generation as many had attained age group of 20 to 24 after completing college education they are now getting into the workplace, which gives them the freedom to spend in what they want as well another age group from 6 to 19 in this generation has potential to influence a buying decision made in a social environment based on their age needs.

Colour psychology

Colour psychology is the study of the link between colours and human behaviour, and it is essential for a better understanding of our actions. Colours are present in every aspect of our daily lives. Colours may be used to represent one's feelings and self-expression. Colours account for around 90% of a person's first impression (V. Ranjana,2020). Colours may impact a person's behaviour and attitude, particularly their learning attitude. Each hue has its significance. Colours have different meanings for different people and cultures. Each hue has its wavelength, such as red and yellow for long wavelengths and blue and green for short wavelengths.

Review of literature

Dianne Cyr, 2009 – In this study, three website colour treatments were examined across three culturally diverse viewing groups for their influence on user trust, happiness, and loyalty. To collect data, a multi-method approach was employed, which included eye-tracking, a survey, and interviews. The findings show that website colour is a key driver of website trust and satisfaction, with cultural variances. The findings are useful for online marketers and interface designers when it comes to efficient colour utilisation in website development. Nathalie Bonnardel,2011 – In this research two experiments were done, each focused on a single perceptual feature: website colour. The first research looked at the colours that designers and users choose for a Web site. Although studies frequently point out distinctions between designers and users, it had been discovered that the latter shared numerous favourite colours. Based on the preliminary findings, three colours were chosen for the second research that looked at colour in the context of a complete website. The key novelty of the second study is that it utilised both subjective and objective data to assess the influence of colour, examining not just users' perceptions but also how they navigated the website.

Gabriel Nordeborn, 2013 - The purpose of this study was to see how colour affected the ratings and performance of an experimental website used to look for medical information online. This was accomplished by changing the colour of an experimental website and allocating participants to the various coloured web pages at random. The findings revealed no statistically significant impacts of colour on website evaluations and no statistically significant differences in participants' search time when utilising the site. When considering search time as a covariate, however, a statistically significant interaction between colour, gender, and ratings was discovered.

Yasir Khan Khalil, 2018 - The goal of this study was to take a look at the psychology of colour in marketing. This study states within 90 seconds, individuals make up their minds about a product or a person. Colours account for from 62 to 90 per cent of a product or person's evaluation. As a result, colour not only serves to distinguish your product from that of your rivals, but it also has an impact on the moods and sentiments of individual customers, influencing their attitudes toward a certain product. Because human emotions and moods fluctuate over time, every marketing manager should understand the significance of colour and design their products or packaging accordingly. This research examines the literature on colour psychology. Colours, according to the research, have a significant impact.

Statement of problem

Despite its bad design, the correct use of colour may easily persuade a buyer to gravitate toward the product likewise in website design right colour can persuade a customer to stay longer and create a positive impact on the brand. Combining form, function, aesthetics, and colour harmony in a single object is critical in design. Will a customer choose to purchase in shoddy design based on an appealing colour combination? Will a customer ignore or dismiss a well-designed image or product because of a bad colour scheme on the website? This will assist website designers in comprehending the importance of colour in website design and how it may influence a consumer's decision to buy a product, whether it is well designed or not. Website colour should be based on what it sells and based on its focus group. Selecting a focus group and analysing the colour likability can give rise to new insights in website designing.

Objective of the study

- To examine the views of gen z on colour usage on the website
- To understand the likeability of website colour among gen z, colour is categorized as primary, secondary and tertiary.
- To determine whether colour likeability for a website varies based on age and gender.

Limitation of study

- The sample size was limited to 48 and the period is limited
- The area of study is limited to Chennai city

- The age group of gen z varies from 6 – 24 so obtaining data from the age group of 6-15 was tough and only a few data had been collected from this age group.

Research Methodology

This study employs a quantitative strategy with a descriptive approach. This study depends upon the responses collected from the gen z group from Chennai city. Primary and secondary data is being used for this research, primary data was collected through a structured online questionnaire and secondary data is collected from referred journals & articles. Percentage analysis, T-test and ANOVA is used to analyse data in this study. A reliability test has been done before proceeding with the data and Cronbach's Alpha of .824 is obtained so further proceeding with data had been done. A total of 22 males and 26 females had been taken for the study. The gen z age group varies from 6-24, 4 respondents from the age group of 10-15 years has been collected, 14 responses from 15 – 20 years have been collected, 30 responses from the age group of 20 – 24 years has been collected.

Data analysis and interpretation

Analysis on the perception of website design colour influence among gen z

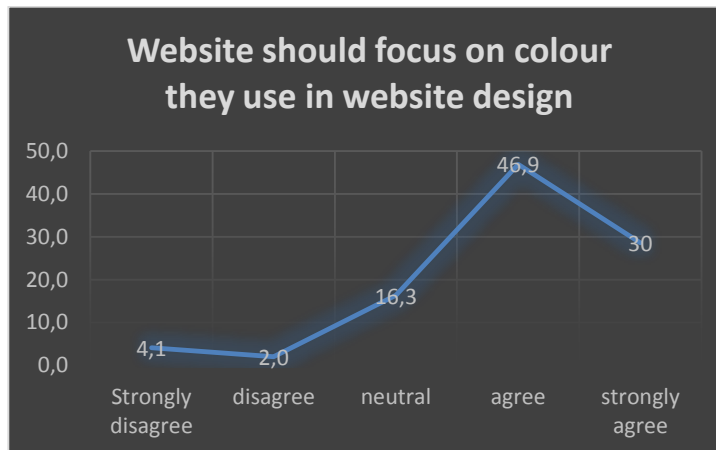


Fig 1. Percentage analysis on colour necessity

From this analysis, it is found that about 76% of gen z involved in research accept the fact that website should focus on its colour. Analysis on colour in website design and its influence on attention span.

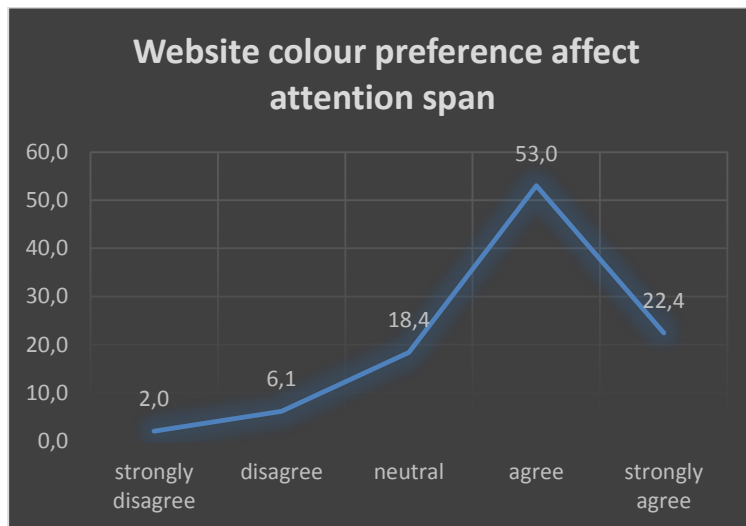


Fig 2. Percentage analysis on website colour preference affect attention span

From this analysis, it is found that about 75% of gen z involved in research accept the fact that website colour preference affects their attention span. With this analysis, it is understood that colour has an influence on our psychological aspect and it gives insights for further identifying the likability of colour among gen z. The T-Test is done to identify whether colour likability varies based on gender.

Null hypothesis H0: Website design colour likability does not vary based on gender

Alternative hypothesis H1: Website design colour likability varies based on gender

Colours are categorized and used for this analysis, colours are categorized for accurate analysis with demographic variables like gender and age.

Primary colour

Table 1
Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Primary color	Equal variances assumed	.022	.882	-.065	46	.949	-.042	.646	-1.343	1.259
	Equal variances not assumed			-.065	44.716	.949	-.042	.646	-1.344	1.260

Secondary colour

Table 2
Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Secondary color	Equal variances assumed	.001	.971	.425	46	.673	.234	.551	-.875	1.343
	Equal variances not assumed			.427	45.332	.671	.234	.549	-.870	1.339

Tertiary Colour

Table 3
Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Tertiary color	Equal variances assumed	.311	.580	-.509	46	.614	-.626	1.231	-3.103	1.851
	Equal variances not assumed			-.519	45.729	.606	-.626	1.205	-3.053	1.801

Interpretation: From the analysis, it is found that the significance level of the t-test is greater than 0.05 hence we can conclude that there is no variation on website colour likeability based on gender among gen z. So we can in general analyse the likeability of colour ignoring gender differences and carry out research. Further analysis is done to understand the likability of colour based on age group. One way ANOVA is used to understand age factor and colour likability.

H0: There is no relationship between age difference among gen z and colour likability

H1: There is a relationship between age and colour likability among gen z

Primary colours analysis

Table 4

ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
RED	Between Groups	7.134	2	3.567	2.824	.070
	Within Groups	56.845	45	1.263		
	Total	63.979	47			
YELLOW	Between Groups	4.883	2	2.442	2.739	.075
	Within Groups	40.117	45	.891		
	Total	45.000	47			
BLUE	Between Groups	6.298	2	3.149	2.852	.068
	Within Groups	49.681	45	1.104		
	Total	55.979	47			

Secondary colours analysis

Table 5

ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
ORANGE	Between Groups	3.200	2	1.600	2.151	.128
	Within Groups	33.467	45	.744		
	Total	36.667	47			
GREEN	Between Groups	1.860	2	.930	1.044	.360
	Within Groups	40.057	45	.890		
	Total	41.917	47			
PURPLE	Between Groups	5.405	2	2.703	2.478	.095
	Within Groups	49.074	45	1.091		
	Total	54.479	47			

Tertiary colour analysis

Table 6

ANOVA					
Tertiary color					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	41.334	2	20.667	1.172	.319
Within Groups	793.645	45	17.637		
Total	834.979	47			

Interpretation: From the analysis, it is found that the significance level using the ANOVA test is greater than 0.05 hence we can conclude that there is no variation on website colour likeability based on age among gen z. So we can in general analyse the likeability of colour ignoring age difference and carry out research. Frequency Analysis is done to analyse the likeability of colours and colours are

categorized as primary, secondary and tertiary colours for analysing. Colours are categorized for accurate analysis with demographic variables like gender and age. Analysis of Primary colour likeability for website design and representation of it in the chart

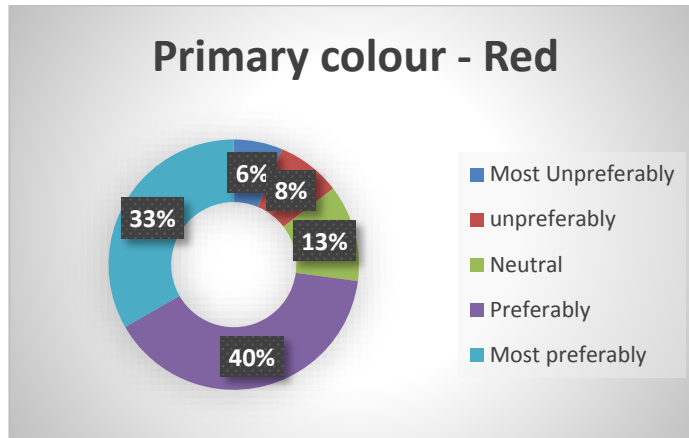


Fig 3

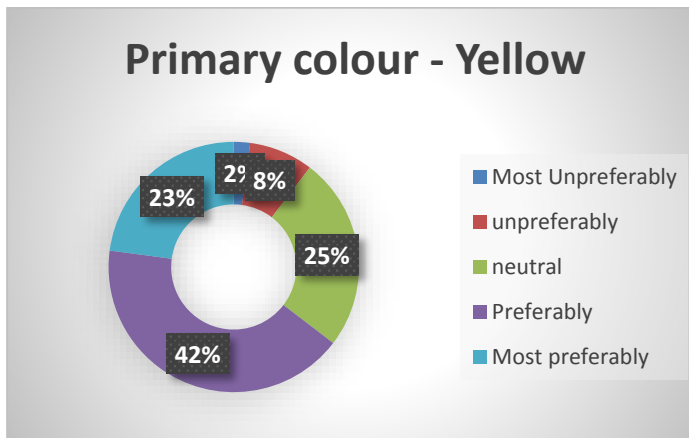


Fig 4

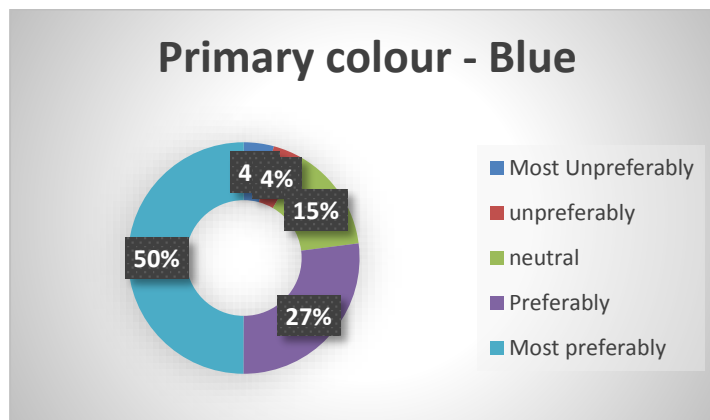


Fig 5

It is found that from the analysis most preferred colour by gen z for website design is the blue colour. Analysis for Secondary colours likeability for website design and representation of it in a chart.

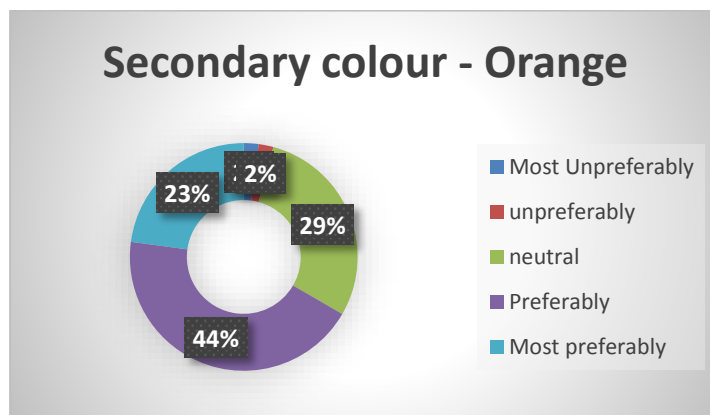


Fig 6

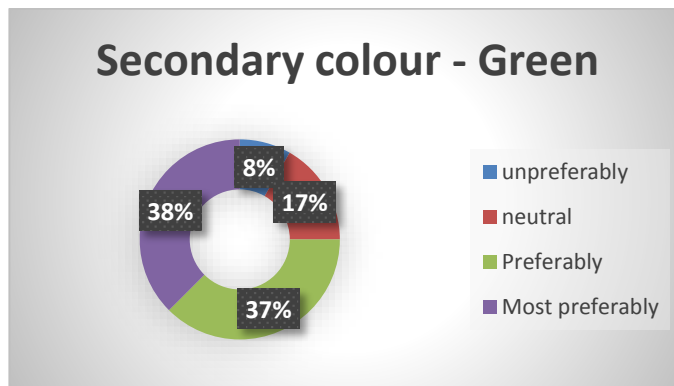


Fig 7

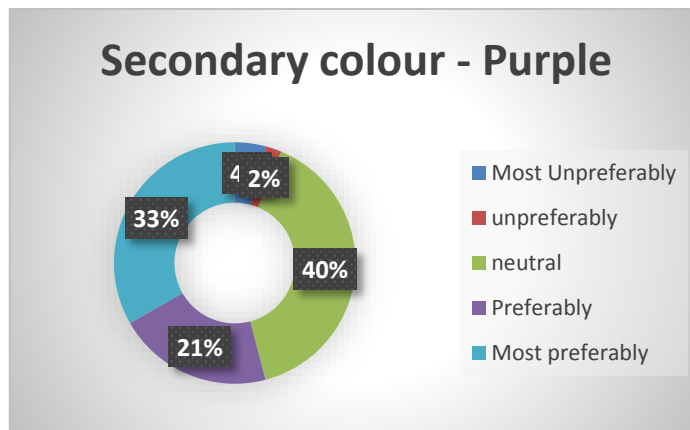


Fig 8

From the analysis it is found that the preferred colour is green and orange by gen z for website design, purple is being responded as neutral. Analysis for Tertiary Colour likeability for website design and representation of it in the chart.

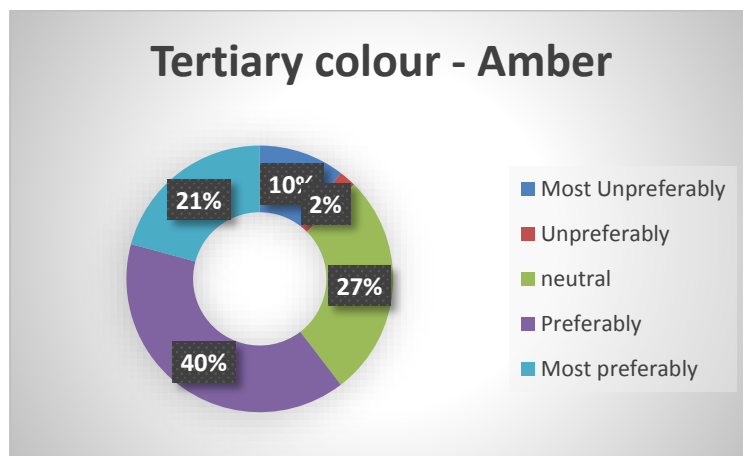


Fig 9

Tertiary Colour - Vermillion

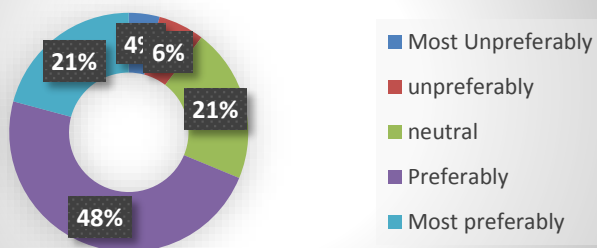


Fig 10

Tertiary colour - Magenta

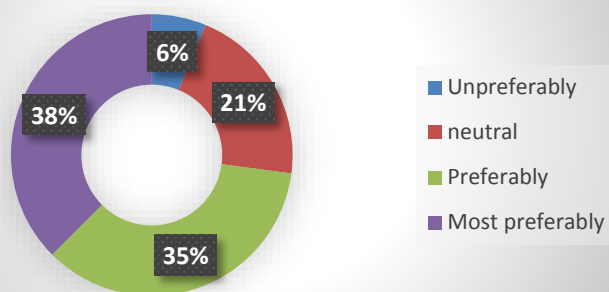


Fig 11

Tertiary colour - Violet

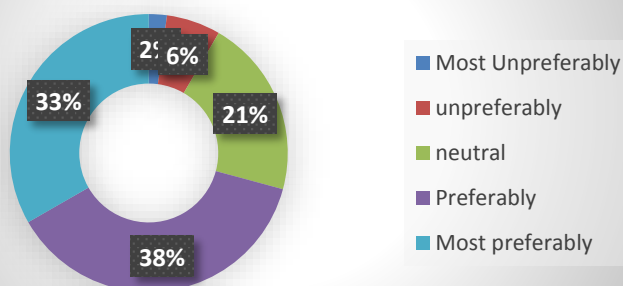


Fig 12

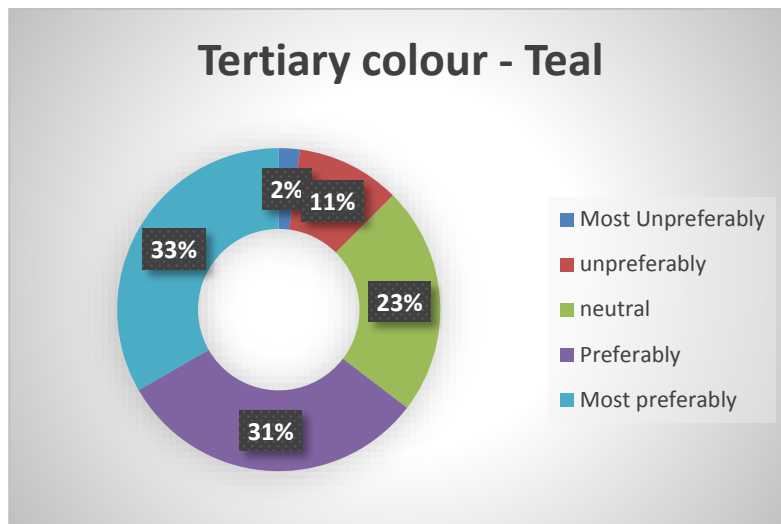


Fig 13

From the analysis, it is found that tertiary colours have a positive impact on website design colour likability by gen z, magenta, vermillion, chartreuse, violet, teal are most preferred. As a final result analysing Primary secondary and tertiary colour likability most preferred among all colour is the blue colour.

Discussion

Visual stimuli are undeniably important in human life, particularly in consumer behaviour. Whether customers make purchases in traditional stores or online, such as for food goods, the majority of people consider aesthetic aspects to be the most essential considerations in their selection. If customers don't like the way our website design appear, they're less likely to be inclined; instead, they'll move on to because of surfing nature online. Furthermore, in many situations, particularly when purchasing items online, consumers are unable to test the components of taste, smell, or feel before making a purchase choice. As a result, the importance of visual components in e-marketing and website design increases dramatically. Appearances are indeed important. Colour might be regarded as the most essential component among various visual elements. Most individuals, on the other hand, are unaware of the profound effects colour has on them and their everyday lives; they simply take a colour for granted. Colourful objects, such as products, ads, and other marketing materials, may attract greater attention than black-and-white items. On the other hand, any single colour does not have the all-powerful ability to draw attention; it is the complementation and contrast with other colours that allows that target colour to stand out from the crowd (Trang Duong, 2013). Thus in this research with gen z as the target group likability of colour for website design had been identified and it can be utilized for building a website for gen z on another hand only single colour cannot make a huge impact, the combination of identified colours can be used to build a website for gen z along with the product nature colour for a website can be fixed, There are many studies regarding nature of colour for correlating it with the particular product.

Conclusion

Colour is crucial to employ in website design, as indicated in the sections above, and the connotations connected with colour should be examined. Because research shows that colour is essential, it's vital to go more into how the impact of colour on a website varies depending on the individual. Various colours used in this study are categorized as primary, secondary and tertiary based on the colour theory. These colours are then circulated to gen z with the questionnaire to identify the likeability of colours for website design. Thus Anova and T-test on data gave us insights that there is no gender and age bias in likability or choice of colour for website design. so this research focused on identifying the colour likability of colour for website design by gen z. This research can be used for further analysis on examining these colours with the designed website and measuring the impact on gen z in real-time. In website design, colour is essential to consider for attracting target customers. The website needs to make the finest use of colour to evoke the optimum response.

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