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Color preferences for different topics in connection to personal characteristics

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Abstract
Studies on color preferences are dependent on the topic and the relationships with personal characteristics, particularly personality, but these are seldom studied in one population. Therefore a questionnaire was collected from 1095 Dutch people asking for color preferences about different topics and relating them to personal characteristics.
Color preferences regarding different topics show different patterns and significant differences were found between gender, age, education and personality such as being technical, being emotional or being a team player. Also different colors were mentioned when asked for colors that stimulate to be quiet, energetic, able to focus or creative. Probably, due to unconsciousness of contexts, many people had no color preference, a result that in the literature seldom is mentioned.
Blue was the overall favourite color, however most males chose for blue (25 %) while most females had no color preference (18 %). Black was the overall favourite color for clothing, mainly chosen by females (40%), while males primarily chose blue (27%). For building interiors subjects preferred white. For moods, subjects preferred white for being quiet or being able to focus, red for being energetic and had no color preference for being creative.
It is concluded that color preferences are dependent upon the topic, and personal characteristics. The findings are important for architects, interior designers, fashion designers and product designers to have a basic idea of preferred colors for different objects by different types of people.

Keywords
color preference; personal characteristics, personality, mood

1. Introduction

1.1 Many differing viewpoints on color preference

Since the end of the nineteenth century studies on color preferences show many differences in human preferences [1-3]. One of the earliest studies found no general order of preferences for colors. Cohn [1] stated that individual taste largely determines someone's color preferences[4]. In 1933, a common range of color preferences was observed, showing first order of color as blue, second or third as red or green and the fourth as yellow [2, 4-7] suggesting a biological cause of likes and dislikes of colors [4]. These likes and dislikes can be interfered by human characteristics. While many studies established relationships between preferred colors and personal characteristics, including extensive studies of Eysenck who collected data of different researches concerning totally 21,060 subjects in 1941, a clear view on the relationships between color preferences and personal characteristics is still lacking. In addition, authors discuss on the relationship between color preferences and the characteristics of color such as hue, value and chroma. According to Arnhem [9] the relationship between color preferences and the characteristics of colors is still unclear.

1.2 Determination of color preferences for different topics

The determination of color preferences varies in many studies. In most studies, color preferences are studied by asking for an overall favourite color. Other studies ask for particular color preferences for clothing, the exterior and interior of buildings, food or cars. Schloss et al [10] showed differences in color preferences dependent on type of clothing. Gage [11] states that black is the preferred color for clothing.

In the Renaissance, black was the color of privilege and wealth. Nowadays, black clothing is worn by all levels of society and is often the preferred color for clothing and is an appropriate color for all occasions [11]. People are viewed as more attractive when dressed in black or red [12]. In addition, Choo and Kim[13] indicate red and grayish tones as an elegant image. However, Vrij and Akehurts [14] state that black clothing is seen as the stereo-type color for criminals.

In studies concerning color preferences for workspace environments, the focus is often on a specific color. The primary color preference for the workplace is white [15] or the low chroma colors of light blue, light aqua green and off white. [16-17] In addition, Schloss et al [10] showed for walls a dependency with the lightness of colors.

In studies concerning food color, Hutchings [18] stated that color preferences are determined by evolution. Pangborn [19] found that the relationship between color and taste is strong and demonstrated that artificially colored food products, such as white wine colored with a red pigment tastes sweeter than the same white wine without the red pigment.

Color preferences for non-food products are often based on the way people want to present themselves [20] or as a marketing cue [21]. In these cases color is linked to the product. For instance, according to Eysenck, Katz, Valdez & Mehrabian, and Dittmar[2,4,6,7], blue is generally the preferred overall color. However, when purchasing a car, people do not prefer the color blue at all [21]. Additionally, context plays a prominent role in color preference [10,22,23]. Advertisements are driven by looking for eye catchers asking for instance specific qualities of the color [24]. Yellow is often applied because it implies a radiating quality [25], although the color yellow is scarcely mentioned as favourite color [4,7,21].

1.3 Factors influencing color preference

Researchers found differences in color preferences related to gender [4,7,10,15,26,27]. For instance, Funk et al [28] mentioned that males prefer colors related to what the color signifies, whereas females' color preferences are related to the colors' attractiveness. However, Katz [2] stressed that gender has no effect on color preference. Additionally, Ou et al [29] found no differences between males and females in color emotions. Other researchers also found differences in color preferences related to age [2,7,27,30,31]. Lind [32] reported biological and social factors as underlying factors for color preferences and seasonal influences related to the three color variables hue, value and chroma. Other factors are mentioned in the literature as well such as level of education [33-34], intellectual development [2], culture[21,27,35], marital status and background [36], region [27], lifestyles [27] and personality such as introvert versus extrovert [37].

1.4 A huge variety of applied methods

The types of methods applied in studies could influence the resulting color preferences. The way color preferences are determined varies from analysing magazines [24], watching facial expressions [38], establishing the fixation time [39], counting the quantity of colored toys, clothes and room colors [40], selecting clothing samples [37] or selecting colored squares on screens [10,29] or photographs on screens[23]. Additionally, the way the color is presented differs and varies from colored charts [2,4,41], Milton Bradley colored papers [33] till color palettes [35], colored dolls [42], colored chips[16], colored rooms[15], colored clothing samples [37] or screens[10,29]. The number of the colors presented varies from two [31], four[7], five [39], six [2], nine [36] and ten [4] or more [10, 29, 41]. Sometimes colors are applied to objects that are familiar to test subjects, i.e., Milton Bradley pencils [30]. In other studies, colors are presented using different levels of chroma and saturation [6,10,15,,23,29,41,43,44]. Different information models are used to measure the degree of attractiveness[45], the degree of pleasure, arousal, dominance and emotion i.e., the model of Valdez and Mehrabian [29,46] and models based on the Semantic Differential Scale of Osgood [29,45]. Due to the differences in applied test materials, methods and models and different contexts, it is difficult to compare the outcomes. In addition, the qualities of the color itself may have an influence as well. Lots of discussions are hold about the influences of these qualities on color preferences. The psychologist, Zajonc [47] indicates that value and chroma do not play any role in the

process of establishing color preferences. Zajonc conceives color as a phenomenon with color groups such as blue group or the yellow group without any specifications. When color preferences are related to topics such as cars or particular clothes, contexts like backgrounds, forms and spaces or emotions and connotations such as happiness or calmness, chroma and value influence the color preference [10, 23,41,44,48,49,50]. However, the findings of the different researches concerning the influences of value and chroma are conflicting and do not show consistent patterns. Guilford and Smith for instance showed that people perceive colour as more pleasant when brightness is added [41] while Eysenck indicates a colour preference that is inversely with the luminosity factor [4].Park and Guerin mention that both saturation and value determine the color preference[35] while Acking and Küller show no effect of these two factors [57,58].

Next to this problem, individual differences among the test subjects may contribute to the conflicting findings. By combining different aspects in one study, the present study provides additional information on color preferences for different topics related to personal characteristics.

1.5 Research questions

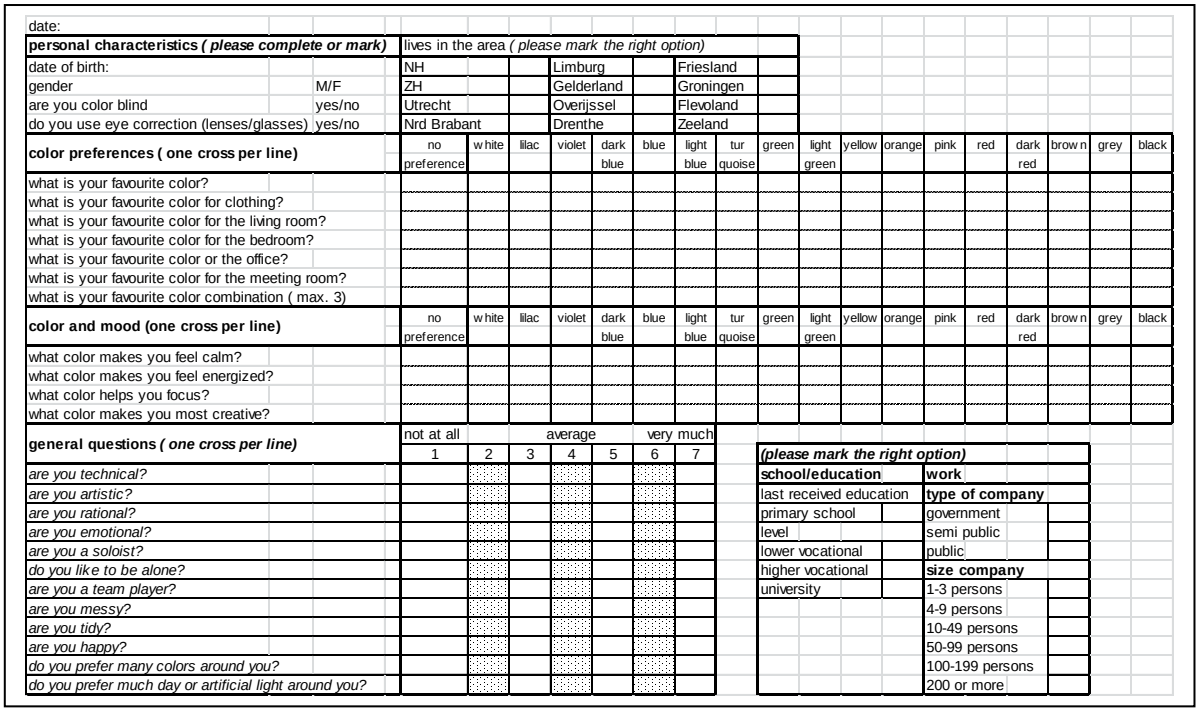
Many colour studies focus on general colour preference. Because people daily experience the physical environment and are also daily concerned about their clothing, the present research investigates both the general favourite colour and color preferences for the physical environment and clothing. These topics are regularly analysed in different researches [10,12,13,14,15,16,17,20,23,27,32,35,36,37,45,46]. Next to these physical topics it is interesting whether people have any colour preferences related to their moods. This could be interesting regarding the physical environment as well. The color preference regarding a specific mood such as being creative might have added value related to the colour preferences for a meeting room in which creative sessions could be organised. Not only color is a complex phenomenon, but so are people. A person is not only characterised by data such as age and education, but also by human characteristics. As such, this research focuses on two main research questions:

1 What are the color preferences of adults and do they differ per topic?
2 Is there any relationship between color preferences and personal characteristics, in particular personality?

2 Methods

For this study, 1095 subjects were asked to complete a color preference questionnaire indicating a favourite color in general, color preferences for clothing, four types of rooms e.g. the living room and the office and color preferences for certain moods e.g. being energetic. Eighteen subjects were excluded due to color blindness leaving 1077 subjects in our study. In this research it is assumed that a relationship exists between a color name (such as blue) and the color people have in their mind. So the color name is conceived as a group of colors in the way Zajonc did, including differentiations concerning value and chroma. The demographics collected were: age, gender, education level, living area, type of company and size of company. On a ‘Likert’ seven point scale the participants were asked if they considered themselves to be: technical, artistic, rational, emotional, a soloist, like to be alone, a team player, messy, tidy, happy, prefer colors and require much light. All subjects live in the Netherlands which can be considered as European western culture. Only the names of the colors were mentioned in the questionnaire as we primarily focus on the personal image people have of colors such as for instance the group blue or the group yellow.

The questionnaires (figure I) were collected by email and distributed on-site during lectures at different educational institutions of higher education. All data was processed using SPSS 16 to analyse ratios and significant correlations.



date:

personal characteristics *(please complete or mark)*		lives in the area *(please mark the right option)*																	
date of birth:		NH			Limburg		Friesland												
gender	M/F	ZH			Gelderland		Groningen												
are you color blind	yes/no	Utrecht			Overijssel		Flevoland												
do you use eye correction (lenses/glasses)	yes/no	Nrd Brabant			Drenthe		Zeeland												

color preferences (one cross per line)	no preference	white	lilac	violet	dark blue	blue	light blue	tur quoise	green	light green	yellow	orange	pink	red	dark red	brown	grey	black
what is your favourite color?																		
what is your favourite color for clothing?																		
what is your favourite color for the living room?																		
what is your favourite color for the bedroom?																		
what is your favourite color or the office?																		
what is your favourite color for the meeting room?																		
what is your favourite color combination (max. 3)																		

color and mood (one cross per line)	no preference	white	lilac	violet	dark blue	blue	light blue	tur quoise	green	light green	yellow	orange	pink	red	dark red	brown	grey	black
what color makes you feel calm?																		
what color makes you feel energized?																		
what color helps you focus?																		
what color makes you most creative?																		

general questions *(one cross per line)*	not at all 1	2	3	average 4	5	6	very much 7
are you technical?							
are you artistic?							
are you rational?							
are you emotional?							
are you a soloist?							
do you like to be alone?							
are you a team player?							
are you messy?							
are you tidy?							
are you happy?							
do you prefer many colors around you?							
do you prefer much day or artificial light around you?							

(please mark the right option)	
school/education	**work**
last received education	**type of company**
primary school	government
level	semi public
lower vocational	public
higher vocational	**size company**
university	1-3 persons
	4-9 persons
	10-49 persons
	50-99 persons
	100-199 persons
	200 or more

Figure I: The questionnaire for color preferences used in this study

3 Results

3.1 Study population

The characteristics of the study population are shown in table I. The numbers of men and women are nearly the same. The age varies mainly from nineteen to sixty five years old. Most subjects are educated at the higher vocational level and most subjects are working in a business environment.

Table I: characteristics of the study population

Characteristics	number	percentages
gender		
male	548	50,9
female	524	48,7
missing	5	0,5
total	1077	100,0
age range		
till 18	11	1,0
19 till 25 incl.	279	25,9
26 till 35 incl.	185	17,2
36 till 45 incl.	228	21,2
46 till 55 incl.	204	18,9
56 till 65 incl.	111	10,3
66 and older	5	0,5
missing	54	5,0
total	1077	100,0

Characteristics	number	percentages
education		
university level	262	24,3
higher vocational level	644	59,8
lower vocational level	164	15,2
missing	7	0,6
total	1077	100,0
work		
government	164	15,2
semi government	185	17,2
business	583	54,1
other	145	13,5
missing	0	0,0
total	1077	100,0

3.2 Favourite colors in general

Table II shows the percentages of the favourite colors of the total population in this study. The color blue was the favourite color, showing the highest percentage of 19% and no color preference was second at 16.1%. The majority of females in our study had no color preference (17.7 %) and blue was the second preferred color choice (13 %). Both female and male chose red as the third favourite color.

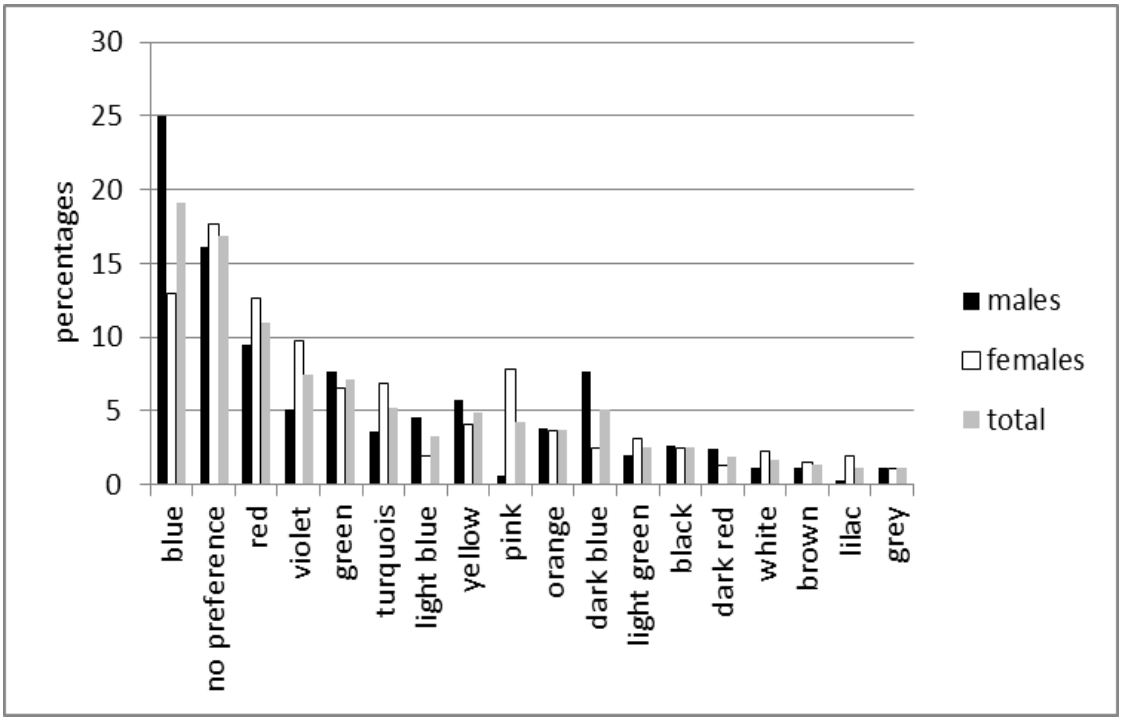


Figure II: The favourite colors for males and females, and total group in percentage of this specific group

Significant correlations between favourite colors and gender (χ^2= 101.19; p=0.00; α = 0.05), age (χ^2= 121.3 p=0.000; α = 0.05) and education (χ^2= 46.806; p=0.026; α = 0.05) are found. University level educated subjects chose blue more often and subjects of vocational level had a higher preference for light green and pink. Also significant relationships between favourite colors and the personality of the subject characterised by him or herself as 'being artistic' (One way ANOVA: F= 2.1092 p= 0.04; α=0.05) are found. People who said they were less artistic, more often chose for blue. Subjects who characterized themselves as 'very artistic' chose colors that were chosen at a lower percentage, such as turquoise. No significant relationships are found with living area, type of company and size of the company.

3.3 Color preferences for clothing

Table III shows the color preferences for clothing for males and females. In the whole sample black is the most preferred color for clothing (28%). It is especially favourite among females (40%). Males rated black at the fourth position (16 %) after blue (27 %), dark blue (18 %) and the option 'no color preference (17%). The choice for 'no color preference' concerning clothing was rather high: women ranked 'no color preference' as second (17 %) and men with an almost equal percentage (17%) at the third place. Among all 1077 subjects, no one preferred yellow as favourite color for clothing. Color preferences for clothing were significantly related to gender (χ^2 = 194.59; p=0.00; α = 0.05), age (χ^2= 194.59 p=0.000; α = 0.05) and education (χ^2= 62.831; p=0.000; α = 0.05). Subjects educated at university level chose blue for a preferred clothing color and in lower extent for 'no color preference' and black. Nearly one third of both groups educated at higher vocational and lower vocational level chose black. Subjects with education at higher vocational level had a relative low preference for blue. The preference for blue increases with age: older people chose blue and dark blue. The youngest subjects preferred black while the oldest subjects chose black the least.

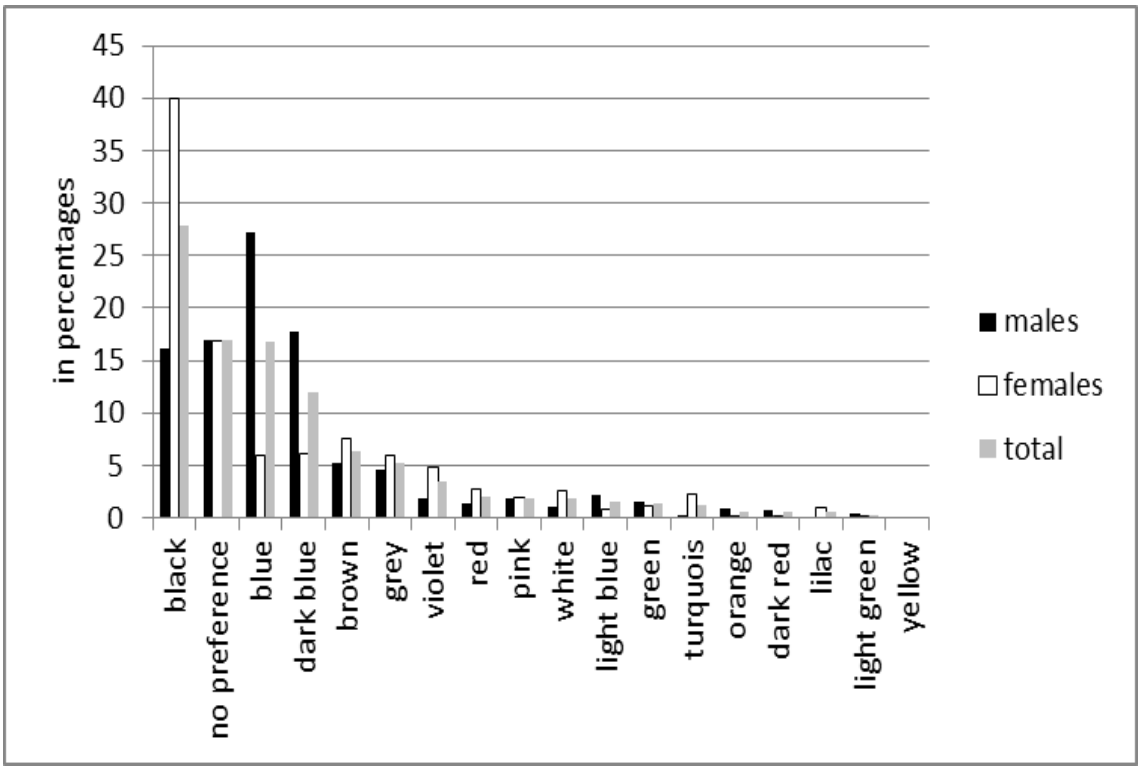


Figure III: Color preferences of males and females and total group for clothing in percentage of the total of the group

The color preferences related to clothing were significantly related to personalities 'being technical' (One way ANOVA: F= 2.3973; p= 0.020; α=0.05) and 'being emotional' (One way ANOVA: F= 2.764; p= 0.0113; α=0.05). The more technical respondents preferred blue colored clothing and the less technical preferred black clothing. The more emotional respondents preferred black clothing. Color preferences were also significantly related to the degree people were liking colors around them (One way ANOVA: F= 2.482; p= 0.022; α=0.05). No significant relations are found with living area, type of company and size of company.

3.4 Color preferences for the physical environment

Thirty to 41 percent of all subjects chose the color white for a preferred color in four types of physical environments, the highest percentage in office spaces. For all four types of rooms, male respondents preferred white over that of females. The choice for no color preference in color was highest for meeting rooms at 22 %. The percentages concerning the color preference for males and females for the physical environment are presented in Table IV.

Figure IV a to d: Color preferences for the physical environment for males, females and the total group in percentage of that group

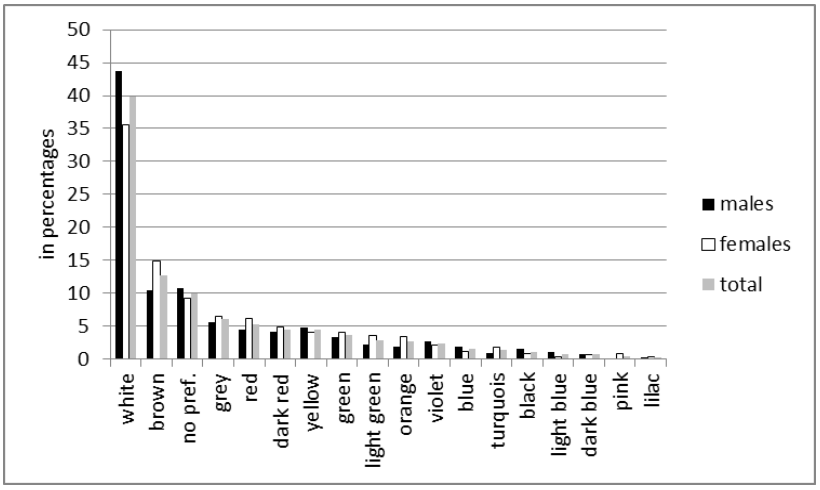


Figure IV a: The living room

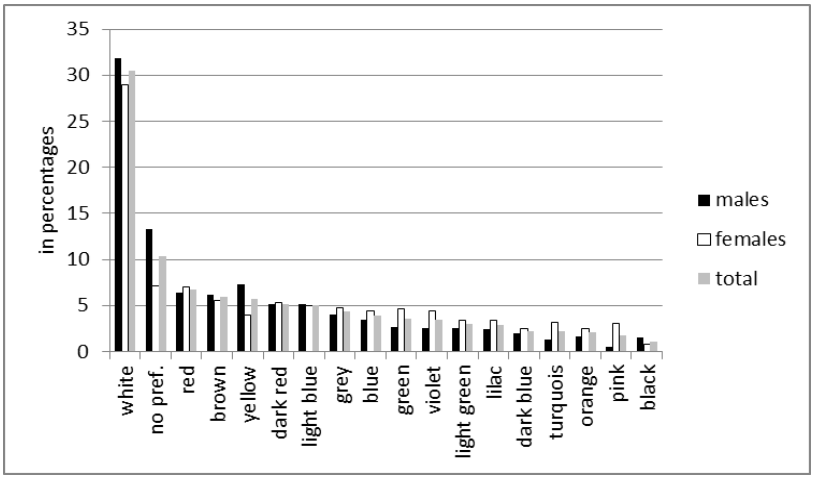


Figure IV b: The bed room

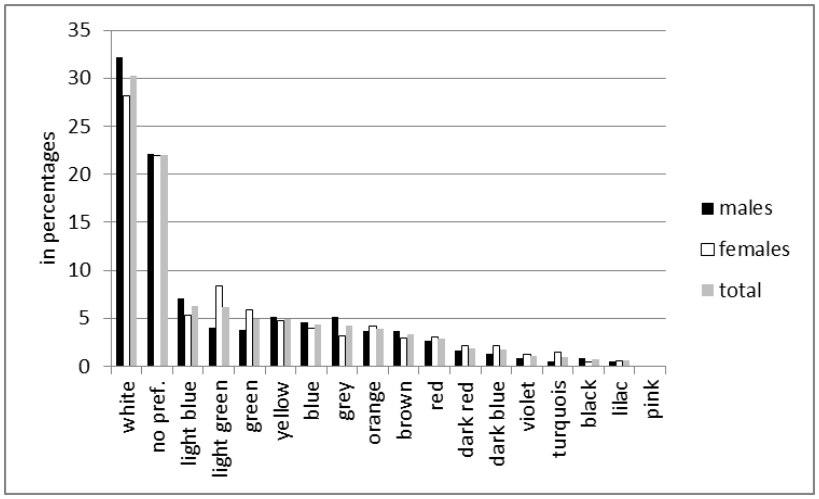


Figure IV c: The meeting room

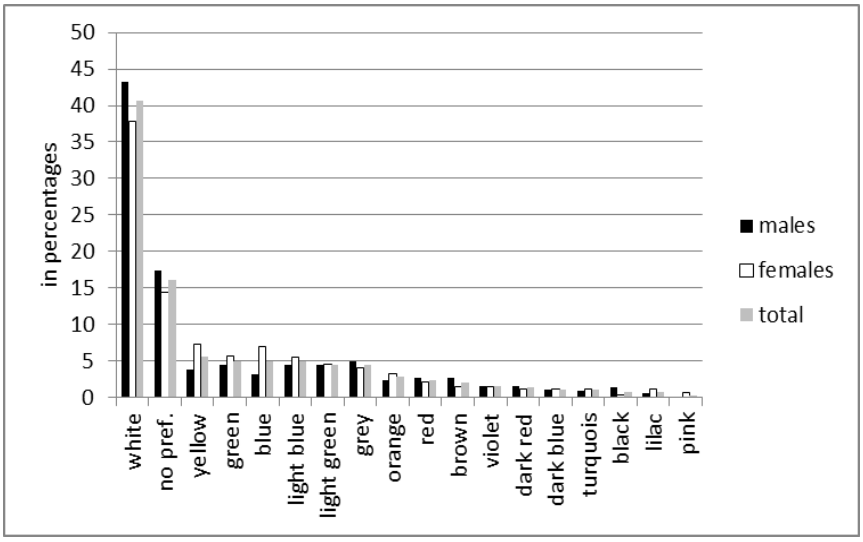


Figure IV d: The office

Color preferences for the physical environment were significantly related to gender concerning the bed room (χ^2=40.76, p=0.001, α=0.05) and the office space (χ^2=28.81; p= 0.036; α= 0.05), age concerning the living room (χ^2= 87.54; p= 0.000; α=0.05), the bed room (χ^2= 101.83; p= 0.001; α=0.05) and the office space (χ^2 office space = 49.47; p= 0.007; α=0.05) and education concerning the living room (χ^2= 42.08; p= 0.000; α=0.05) and the meeting room (χ^2 =35.41; p= 0.018; α=0.05).
Color preferences for the physical environment were significantly related to the personality of the subjects: for the bedroom, the color preferences were significantly related to 'being a soloist' (One Way ANOVA: F=3.37; p= 0.003; α=0.05); the color preferences for the office space (One Way ANOVA F=3.56; p= 0.001; α=0.05) and the meeting room (One Way ANOVA F= 2.23; p= 0.03; α=0.05) were statistically significant to 'being artistic'. No significant relations are found with living area, type of company and size of company.

3.5 Color preferences related to moods

Subjects preferred white colors around them for "being quiet" (19 %) and for "being focused", 36 % preferred white and 17% had no color preference. Additionally, 30% preferred red for "being energetic" and 27 % had no color preference for being creative. Figure V a to d present the color preferences for the moods for males, females and the total group in percentage of that group

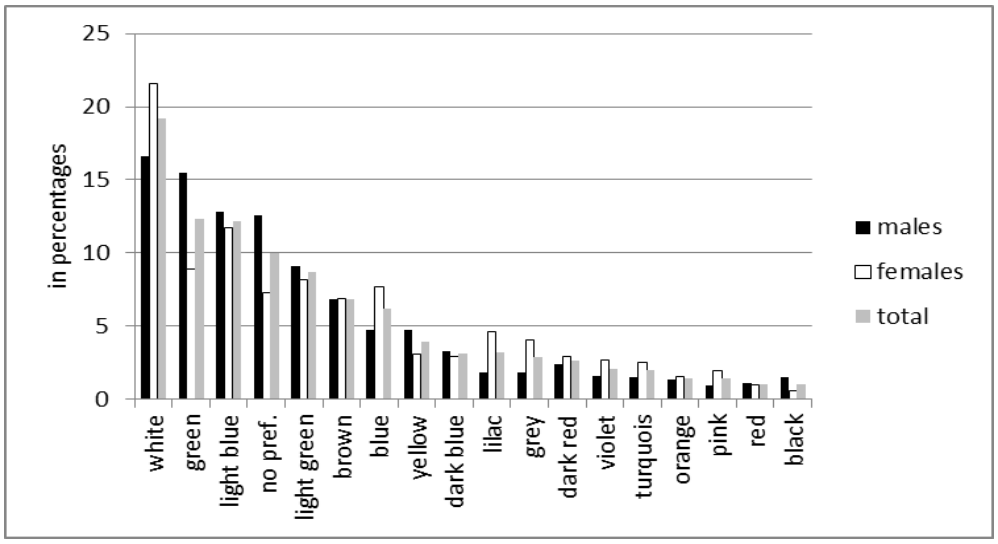


Figure Va: Color preference for the mood ‘quiet’ in percentage of the group males, females and total

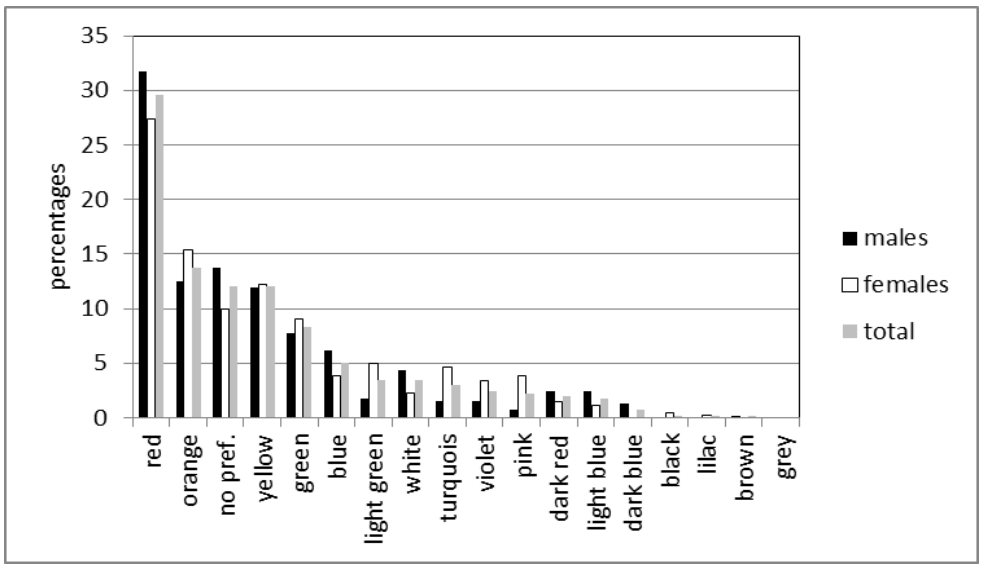


Figure Vb: Color preference for the mood ‘energetic’ in percentage of the group males, females and total

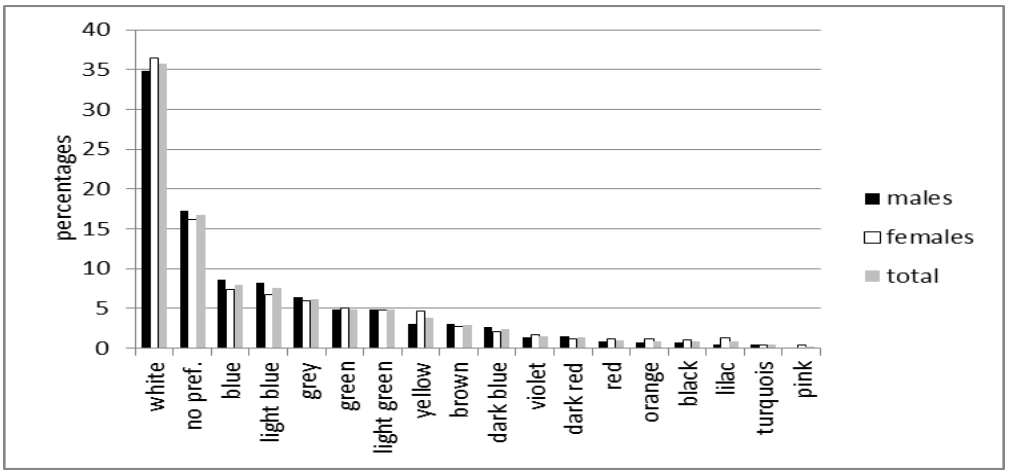


Figure Vc: Color preference for the mood ‘concentrated’ in percentage of the group males, females and total

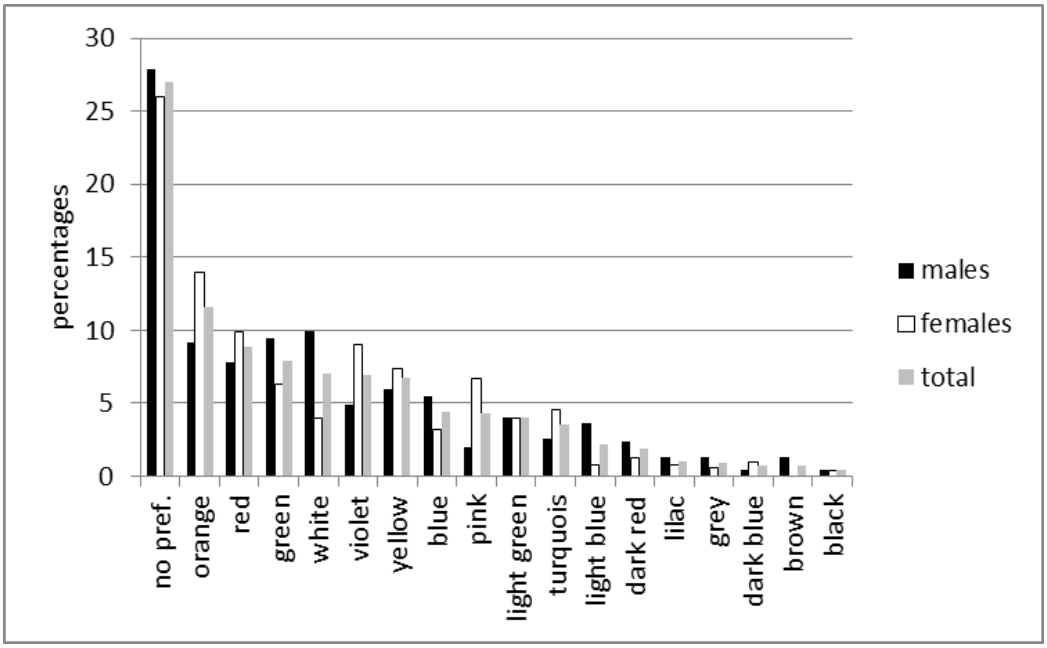


Figure Vd: Color preference for the mood ‘creative’ in percentage of the group males, females and total

Color preferences for moods (Table V) were significantly related to gender concerning ‘being quiet (χ^2 =44.66; p= 0.000; α=0.05), being energetic (χ^2 = 60.1; p= 0.001; α=0.05) and ‘being creative’ (χ^2 = 72.20; p= 0.000; α=0.05). For all moods significant relations exist with age (χ^2 being quiet = 108.33; p= 0.000; α=0.05) (χ^2 being energetic = 98.54; p= 0.000; α=0.05) (χ^2 being focussed = 76.39; p= 0.000; α=0.05) (χ^2 being creative = 79.60; p= 0.003; α=0.05). Education was significantly related to ‘being quiet (χ^2 = 38.46; p= 0.016; α=0.05), being focussed (χ^2 = 34.45; p= 0.023; α=0.05) and being creative (χ^2 = 47.14; p= 0.013; α=0.05).

The color preferences for the moods were significantly related to personality:’ being energetic’ is significantly related to being artistic (One Way ANOVA: F= 2.14; p= 0.03; α=0.05) and ‘being a team player’ (One Way ANOVA: F= 3.54; p= 0.002; α=0.05). ‘Being focussed’ is significantly related to ‘being a soloist’ (One Way ANOVA: F= 2.58; p= 0.017; α=0.05). ‘Being creative’ is significantly related to ‘being artistic’(One Way ANOVA: F= 3.25; p= 0.002; α=0.05). No significant relations are found with living area, type of company and size of company.

3.6 Color preferences and influencing factors

Personal characteristics such as gender, age and education showed to have a significant influence on color preferences in different ways. The same holds true for personality such as ‘being technical’ or ‘being a team player’. To the best of our knowledge this has never been discussed in the literature so extensive. The next table (Table II) shows the significant relations.

Table II: influencing factors on color preferences

influencing factors	favourite color in general	color preference for clothing	color preferences for moods				color preferences for types of rooms			
			being quiet	being energetic	being able to concentrate	being creative	the living room	the bed room	the office	the meeting room
age	X	X	X	X	X	X	X	X	X	X
gender	X	X	X	X	no	X	no	X	X	no
education	X	X	X	no	X	X	X	no	no	X
personality	artistic	technical	no	artistic	soloist	artistic	no	soloist	artistic	artistic
		emotional		teamplayer						
		liking colors								
									X = significant correlation	
									no = no correlation	

We analysed four types of color preferences. For all color preferences a significant relation exist with age, that is in accordance with the literature [2,7,27,30,31]. The factor gender however did not show a significant relationship with color preferences such as the mood 'being concentrated' and the color preferences for the living room and the office. In these cases males and females showed no significant differences. These findings are in accordance with Katz[2] and Ou [29] who in addition did not find significant differences in gender. The factor education has significant influence on the favourite color in general (that is in accordance to Garth[34] and Park[35]) and the color preference for clothing. The personalities showed a different pattern and due to the novelty of these factors, no comparison can be made with the existing literature. The personality 'being artistic' shows most significant relations and is significantly related to the favourite color preference in general, the moods as 'being energetic' and 'being creative' and the color preferences for the office and the meeting room. In addition the personalities as 'being technical', 'being emotional', 'liking colors', being a teamplayer' and 'being a soloist' all have – in different ways- significant influence on the analysed color preferences.

4 Discussion

This research concerns a collection of different types of color preferences based on using color names such as blue. It is assumed that people use these color names for a part of the spectrum belonging to a color group (such as blue). The advantage of presenting colors by mentioning the names of these colors and not by showing pictures of specific colors is that color preferences can be found for a color as a group such as blue. Showing pictures of specific colors in a questionnaire has the disadvantage that someone can have a preference for a specific color group such as blue but dislikes the presented blue due to the degrees of value and chroma. Another problem of showing pictures of colors is that the place where the questionnaire is completed influences the presented colors due to light reflections in the environment.

The first research question asks what the color preferences of adults are and if they differ per topic. The research findings show that color preferences of adults are dependent on the topic. The favourite color choice coincides with the clothing color preference. Twenty three percent of all subjects chose the same favourite color in general and the color preference for clothing. However, the color black shows a different pattern. The color preference for black clothing overall is at 28% whilst the total color preference for black as favourite color is 3%. No other relationships could be found between the four types of color preferences that were studied here. The findings are in accordance with the data mentioned in the literature [2,4-7] : the range for favourite colors in general shows the highest preference for the color blue overall, the range for clothing shows the highest preference for black, and the range for the physical environment shows the color white. For each type of color preferences a specific pattern can be observed. There is a universal scale of color preferences according to Eysenck [4] for specific favourite color preferences and these color preferences seems to vary inversely with the luminosity factor of the color.

That black is the preferred color choice for clothing was also found in the literature. People tend to prefer dark colors for clothing, with high percentages for black, blue, dark blue and brown. The high percentage for the option of 'no color preference' may attribute to the awareness of contexts. According to Kleeman [51] and Kwallek [15] white is the color that creates a spacious feeling. This might explain the preference for white in residential and office environments that is in accordance with modern ways of architectural and interior design.
The color preferences for the four type of moods correlate with the common associations such as red being an active color [45, 52-56] and white representing a neutral color [55-58]. The high percentage of 'no color preference' (27%) regarding the preferred color for the mood 'being creative' is striking. It seems that the subjects, in this case, were aware of context dependency in choosing a preferred color for a particular mood.

The second research question asks if there is a relationship between color preferences and personal characteristics such as gender, age, education and personality such as 'being technical' or 'being emotional'. This study showed significant influences on color preferences (see Table II above). No influences were found due to the type or size of the company. While the literature shows evidence concerning the influence of human characteristics on color preferences [2,4,7,10,15,21,26,27,28,30,31,33,34,35,36,37,] it would be thinkable that in addition the character of the company could have any influence. This was not the case.

It can be concluded that in addition to characteristics often mentioned in the literature, such as age, gender and education, also personality, such as being technical, emotional, artistic, being a team player or being a soloist, influence the analyzed types of color preferences. However, while the factor 'age' consequently influences all types of color preferences, all other analyzed types of color preferences are influenced in different ways. The color preference for clothing is influenced by most factors and the color preference for the living room by the least number of factors (table II). It might be that subjects are aware of context factors. This could contribute to the percentages for the option 'no color preference' for all types of color preferences surveyed. These high percentages are remarkable because these results are scarcely mentioned or found in the literature.
Another interesting point to mention is that the influence of factors is in agreement with the existing literature, such as with growing age people choose more for blue [2,31,39] and the higher the education the more people choose for blue [33,34,59].

To recapitulate the main points it is notable that this study confirmed previous findings that the color blue is the overall favourite color and for this study mainly chosen by males at 25%, whereas females primarily chose ' no color preference' at 18%. Also notable in the literature is that the color black is often mentioned as the favourite color for clothing and for this study mainly chosen by females at 40%, while males primarily chose the color blue at 27%.

A drawback to this study is that the data collection occurred on different days, where people could have different moods, for instance influenced by weather conditions. These variations could have influenced the way participants answered as we have shown that there are relationships between color preference and mood. On the other hand, in real life, conditions vary as well and having a large population these influences could be limited. Another drawback to this study is that participants had to imagine which color they prefer without seeing an actual object. Other studies use colored charts [2,4] or color palettes [36]. The advantage of visual tools is that no verbalisation phase is needed to describe the colors. On the other hand, the object itself, its meaning, texture or form might influence the outcome. Showing colored clothing samples [37] for instance, has a disadvantage that the product and its features, such as texture might influence the color preference. In fact, there is no ideal way of studying color preference. In this study part of the solution to the problem is tackled by asking for color preferences of different topics. This in turn makes it clear that the general color preferences differ dependent on the topic.

Regarding the practical implications cautiousness is needed in transferring preferred colors to physical products. For the clothing industry it is useful to know the color preferences and the differences of color preferences between males and females to respond on these preferences in their collections. For architects and interior architects is it practical to know that most people prefer light colors. However, the real effects of colors depend on the color qualities and its context

5 Conclusion

Adults show different color preferences dependent on the topic. There seems to be a correlation between a favourite color in general and a preferred color for clothing: overall 23 % of all subjects chose the same color for their favourite color and for their clothing. The order of overall favourite colors, mentioned in the literature of past color studies, is blue, red or green, followed by yellow. This is confirmed by the results found in this study. The results from past studies showed black being the

preferred color for clothing. This study also found that in total the color black was mostly preferred for clothing. However, the color preference of black was at a higher percentage for women (40%) than men (16%). Men preferred blue (27%) , followed by dark blue and 'no color preference'. This is a new insight in the color preferences for clothing distributed throughout gender. The color preference for the physical environment was white which might be influenced by modern ways of decorating the interiors of the built environment, particularly in the Netherlands. Additionally, the color preferences of the four moods, being quiet, being energetic, being able to focus and being creative, indicated learned associations. In this study the high percentages for the choice of 'no color preference' for being creative is striking and scarcely mentioned in previous studies.
Due to the high number of subjects and the multiplicity of data, the findings are important for architects and interior designers designing interiors for different types of moods, fashion designers selecting colors for cloths for different types of people and products designers choosing colors for different types of products.

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